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SOME FACTORS TENDING TOWARD ADEQUATE INSTRUCTION IN NERVOUS AND MENTAL DISEASES*

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The earnest effort on the part of the Council on Medical Education of the American Medical Association to raise the standard of medical education in the United States has met a gratifying measure of success. Its beneficent influence has been revealed in several directions. One of its achievements is the formulation of a "standard curriculum" through a subcommittee of one hundred medical educators. This curriculum, however, is intended to be entirely educational and suggestive and the "Council does not consider it in the interest of true progress in education that any standard curriculum whatever shall be uniformly adopted by all medical schools." Even though it was not proposed as a fixed standard, formulated as it was by one hundred prominent educators, it receives general recognition and is bound to be used as a model and thus to have definite influence on medical education in this country.

Medical curriculums are doubtless formulated on the fundamental principle that time and place allotted to a given branch should be proportionate to its importance in the production of competent practitioners of medicine. When we consider the intimate and reciprocal relations of the nervous system with other systems and organs of the body, its highly specialized structures and functions, and, moreover, the conditions and diseases which affect it both primarily and secondarily, the importance of adequate consideration of the nervous system in health and disease in any scheme of medical education becomes obvious.

Does the standard medical curriculum and do the medical schools of this country allot to neurology and psychiatry time and place proportionate to the importance of these branches? This is a serious question and one well worthy of consideration by medical educators generally and particularly by those professing knowledge of the subjects identified with this Section. It would seem that we are justified in answering the question in the negative when we consider the lack of interest by medical students in the clinical aspects of neurology and psychiatry as contrasted with the definite interest in the anatomy and physiology of the nervous system during the first two years of medical school work; the almost universal feeling of incompetence in the recognition of nervous and mental diseases by recent graduates; the apathy, and I may say indifference, toward the easily discernible signs of mental and nervous diseases by medical men generally (excepting by those specializing in these branches and not always by these); the ignorance displayed in our courts concerning them, and the existence and growth of the several "isms" and "cults" which thrive on the credulous, the unbalanced and the nervous.

If we seek to determine the reasons for this state of affairs, two possibilities are at once suggested; either little is definitely known about the nervous system and its diseases or else our medical teaching is inadequate. Surely no one will contend that the general indifference toward neurology and psychiatry existing among the rank and file of the medical profession is due to the state of knowledge concerning these branches. The present state of knowledge is indicated in modern text-books and current literature. Modern text-books on anatomy and physiology devote, respectively, approximately one-fifth and one-third of their pages to the nervous system. In modern text-books on practice fully one-fourth of the total space is allotted to diseases of the nervous system, not including psychiatry, and numerous special works, monographs and journals are devoted to the nervous system and its diseases. Approximately 10 per cent. of the articles published in several leading journals devoted to general medicine, including THE JOURNAL of the American Medical Association, are on neurologic and psychiatric subjects. Certainly, the volume of literature does not indicate that little is kown about the nervous system and its diseases. Moreover, the state of knowledge in these fields approaches a degree of exactness comparable to that in other fields. In no other fields are the reciprocal relations between structure and function better known, exemplified and utilized. We have, therefore, for neurology and psychiatry the firmest foundations in the known facts of anatomy and physiology of the nervous system.

Medical knowledge in general is in a state of flux and not all is known in any department that may yet be known. There are many unsolved problems in connection with neurology and psychiatry. But the state of our knowledge concerning the nervous system and its diseases coupled with existing methods of the clinic and the laboratory is so definite that the recognition of, and the differentiation between, the organic and so-called functional diseases are at least among the possibilities of medicine.

The present degree of indifference on the part of the profession generally toward neurology and psychiatry, is, therefore, not due to the inadequacy of knowledge at the present time; hence it would seem

* Chairman's address, read before the Section on Nervous and Mental Diseases, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

that we are justified in concluding that these subjects are not adequately presented in our medical schools.

If instruction in neurology and psychiatry is inadequate—that is, not proportionate to the importance of these branches—let us direct our attention to some of the factors which appear to be at the bottom of the difficulty. We must recognize defects before we may hope to eliminate them. The chief defects in instruction in our medical schools in these branches will probably be found, first, in instructors and methods; second, in correlation of structures and functions of the nervous system with clinical neurology and psychiatry; third, in correlation of neurology and psychiatry with other clinical branches; and fourth, the time devoted to these subjects and their place in the curriculum.

I. INSTRUCTORS AND METHODS

"Efficient teaching requires three essential conditions: (1) complete mastering of the subject-matter on the part of the teacher; (2) a clear notion of the aim of the teaching, and (3) well chosen methods of accomplishing the aim" (Jackson[1]). Adequate instruction in neurology and psychiatry can be expected only from those who possess adequate knowledge of the structures, functions and diseases of the nervous system, who are trained in the methods applicable to the investigation of these and who are otherwise thoroughly grounded in the principles of biology and medicine. In the ranks of those who profess knowledge in neurology and psychiatry there are many who approach this ideal. On the other hand, there are many incompetents, some of whom have come from general practice, some directly from medical schools with or without a hospital year or two and not a few who "drift in" after unproductive months or years in sanatoriums and state hospitals. Whether "drifting in" from general practice, directly from the medical school or from the state hospital matters little—the fact remains that such men, without additional training, are not equipped, are not qualified to teach either neurology or psychiatry. And from the unequipped in the ranks come the instructors in these branches in not a few medical schools in this country. The demand for well-equipped instructors in these branches far exceeds the supply. This is another point in evidence of the inadequacy in instruction in the past and emphasizes the importance of better teaching in the future. Better teaching will awaken interest in the student body, and from this interest will come the development of more men better qualified to teach the current knowledge of the subjects they profess—"sifting, analyzing, assorting and laying down principles."

In the medical schools of this country with but few exceptions neurology and psychiatry are combined in one department, and in about one-half the schools this department is an independent department. The importance of these branches and their correlations with each other as well as with every other department of medicine are sufficient reasons for combining them in one department; but there is no valid reason why the two subjects should be taught by the same instructor as is the rule. While it may be possible for one to practice neurology and psychiatry, the volume of previous work in either branch is so great that "sifting, analyzing, assorting and laying down principles" cannot be well done by one man in both branches at the same time. Therefore, it would tend toward more efficient instruction in these subjects if certain instructors in the department confine their energies to neurology and others to psychiatry, because independent instructors could best induct the students into the principles and the practice of the special methods in each branch. The aim of instructors in these branches in the medical school should not be to make "specialists" but to aid the student in the acquirement of such knowledge as will better enable him to recognize disease in general and particularly diseases of the nervous system.

Specialism falls short of its obligations to, and ceases to become a part of, general medicine when its methods of investigation cannot be understood and utilized excepting by the specialist himself. The more specialized clinical branches best meet their obligations to medicine when they contribute their portion in aiding the student to have a better appreciation of the patient as a whole individual. In this age of specialism and short cuts to diagnoses the whole individual is often lost to view. Indeed, he is nowhere more completely buried than in the clinical years in our medical schools. During the fundamental years he is a commanding figure; he awakens interest in the student body; he dominates it. During the clinical years he shrinks into darkness and for many is lost beyond recall—crushed by the weight of specialism, crammed into the tired brain of the student body. The general advance in medical knowledge should render the appreciation of the concept of the patient as a whole individual more thorough, more complete than ever before. That such appreciation is actually less must be due in part to the dominance of specialized branches in teaching during the clinical years. The concept of the whole individual should dominate medical teaching not only in the fundamental but also in the clinical years. The true relations of the parts with the whole should never be lost sight of for a moment.

Vocalized text-book chapters — didactic work — should be largely eliminated; and ready-to-use diagnoses—clinical lectures—should be restricted because neither develops the self activity of the student in the recognition of health and disease. Yet neurology and psychiatry are taught mainly in these ways in most medical schools in this country. This is, probably, one of the most serious defects in instruction in these branches, but the defect is in the instructors and not in the branches themselves.

To train the student in the recognition of disease is the primary aim of medical education. The recognition of disease must precede prevention, and it is the very foundation of all rational treatment. Let there be less teaching of nervous and mental diseases and more of the methods of recognizing them. Let the instructors be counselors and guides and not merely the distributors of ready-made diagnoses. Let their activities be expended mainly in guiding the student in accurate data getting, the very foundation of accurate diagnoses. Let the instructors supply the material made up of normal, functional, organic and mixed states. Let the student do the work and his interpretation of the accumulated data will follow as a natural sequence. It is not to be expected that either his data or his interpretations will always be correct either during his student days or at any time thereafter, but earnest effort in either direction at any time will stimulate his interest and develop his self-activity and his self-criticism. Let the student be guided in simple yet accurate methods in getting data concern-

1. Jackson, C. M.: On the Improvement of Medical Teaching, Science, April 12, 1912.

ing family, personal and present history; and concerning sensory, special sense, mental, motor, reflex, vasomotor, trophic and autonomic reactions and he will secure for himself a working knowledge of neurology and psychiatry—knowledge which he can apply to a better elucidation of the clinical problems in other departments of medicine because an appreciation of the reactions of the nervous system in health and disease gives him a clearer insight into the individual as a whole.

II. CORRELATION OF STRUCTURES AND FUNCTIONS OF THE NERVOUS SYSTEM WITH CLINICAL NEUROLOGY AND PSYCHIATRY

Since knowledge of physiology, anatomy, pathology and psychology finds constant application in the interpretation of the symptomatology and physical signs of nervous and mental diseases, students must be able to correlate knowledge of these fundamentals with clinical data. Instruction in each of these, excepting in psychology, is doubtless adequate in the better medical schools. The recognition of the necessity of obligatory work in psychology will doubtless result in speedily remedying this defect in instruction. In the recent Report of the Committee of the American Psychological Association on psychology and medical education[2] it is stated that in the first two years fully 10 per cent. and probably as much as 15 per cent. of the total time is devoted to the study of the nervous system, that is, anatomy, physiology and pathology. The same report disclosed the fact that very few schools are actually giving instruction in psychology though "it appears to be the preponderating opinion both of the best schools and of the schools as a whole, that some instruction in psychology is necessary so that students may understand the mental side of their patients, not only of those who are to be dealt with as insane, but also of many who never reach the extreme conditions which warrant their being sent to an institution for nervous or mental diseases."

In order that knowledge of the fundamentals and of the clinic may be correlated, the principle of relative values should receive greater consideration by instructors in these branches. E. P. Lyon[3] has recently indicated the working of this principle thus: "We should do our best from the multiplicity of facts to supply those most likely to be valuable to our students." Doubtless much could be eliminated in the fundamental and clinical years if instructors would give mainly those facts most likely to be of value in the clinic. If mainly usable facts were taught both in fundamentals and in the clinic, the principle of correlation would become more effective because more simplified. But the instructors in the fundamentals are not as a rule trained clinicians; hence they teach most of what is known about their subjects and necessarily much of little practical value for the clinical years. Moreover, the time which elapses between instruction in the fundamentals and in the clinic is so great that the student will have forgotten much of the useful with the useless knowledge acquired in his first semesters.

To further the teaching of the practical in the fundamentals, conferences should be held between the instructors in the anatomy, physiology and pathology of the nervous system and those in the clinic, and a definite plan of instruction outlined. A few type cases demonstrated in the classes of physiology and anatomy will serve to obviate the evil effects of time on the principle of correlation between the fundamental and clinical years. Neilson[4] has recently asked the pertinent question, "Would it violate any sane principle to have the neurologist give a lecture and demonstrate a case of tabes or one of transverse myelitis when the physiology of the tracts of the cord is studied?" This principle of correlation will be further strengthened by the incorporation of two definite recapitulation courses given by clinicians in the beginning of the clinical years: one consisting in a review of anatomy, physiology and pathology of the nervous system given by the instructor in neurology, the other in a review of psychology given by the instructor in psychiatry.

III. CORRELATION OF NEUROLOGY AND PSYCHIATRY WITH OTHER CLINICAL BRANCHES

The intimate and reciprocal relations of the nervous system with other systems and organs of the body are the fundamental relations which correlate it with the clinic, which prevent narrowness in those possessing a working knowledge of its structures, functions and diseases, and which render a consideration of its several activities indispensable in the study of the patient as a whole individual. Neurology and psychiatry are unfortunately considered by curriculum makers and the profession generally as belonging to the narrowest and least important of specialties, when in fact these branches are special mainly in methods of investigation. The problems connected with them are identical with those of general medicine. A working knowledge of the structures, functions and diseases of the nervous system finds constant application in the study of the individual patient, whatever his disease may be. Hence adequate instruction in neurology and psychiatry is not only dependent on the working of the principle of correlation in these branches between the fundamentals and the clinic, but it is equally dependent on adequate instruction in, and correlation with, other branches of medicine.

Adhering to the principle of relative values, it seems that the kind of instruction most likely to be of value to the student in the clinical years would be in the technical methods utilized in the several clinical branches in the recognition of health and disease. Instruction in these methods, as already indicated, has not been adequate in the department of nervous and mental diseases, and what is true of the instruction in these branches is in a large degree true of instruction in other clinical branches. As a part of the routine examination of the nervous system, for example, the use of the ophthalmoscope, perimeter and laryngoscope, and methods in discerning pupillary anomalies and in determining the functional activity of certain cranial nerves find constant application; yet it is notoriously true that the instructors in the branches to which these methods primarily belong seldom give them adequate consideration. Now adequate instruction in these methods by the department to which they primarily belong aids in developing the self-activity and proficiency of the student not only in these departments but also in other departments. The use of the ophthalmoscope, for instance, is not merely confined to the recognition of certain diseases of the eye but its use is indispensable in internal medicine, pediatrics, surgery, neurology and psychiatry.

2. THE JOURNAL A. M. A., March 30, 1912, p. 909.
3. Lyon, E. P.: Principles of Curriculum Making, Science, May 8, 1914.
4. Neilson, C. H.: The Teaching of General Medicine, New York Med. Jour., 1914, xciv, 1189.

If methods in the use of a single instrument can find such broad application, how very important it appears that students should be taught methods in data getting in each department for the general recognition of disease and for the correlation of the knowledge in one department with that of every other. The correlation of neurology and psychiatry with other clinical branches can be accomplished by the student only when instruction in method is adequate in each department. Let this obvious principle in pedagogy be practiced, and a working knowledge of the nervous system in health and disease will be within the reach of the future graduates in medicine.

IV. THE TIME DEVOTED TO THE SUBJECTS AND THE PLACE IN THE CURRICULUM

If it be a fundamental principle in curriculum making to allot time and place to a given branch in proportion to its importance in the production of competent practitioners, what place and what time should be alloted to neurology and what to psychiatry in the clinical years? Remembering that each branch deals with the same underlying structures and similar reactions of the nervous system; that in a neurologic condition the mental reactions and in a mental state the neurologic reactions should always be studied; that a study of the individual patient whatever his disorder may be cannot be complete without investigating the several activities of the nervous system and that mental states are quite as numerous and important as neurologic states, then it would seem that instruction in both branches should commence in the very beginning of the clinical years, and should be allotted equal time, given in parallel courses and continued throughout these years.

However great may be the ability of the instructors in the fundamental and the clinical branches and however excellent their methods may be, if instruction in neurology and psychiatry is confined mainly to the fourth year, as is now the case in most of the medical schools in this country, the student cannot acquire a working knowledge of these branches. On the other hand, if instruction in these branches be given from the beginning to the end of the clinical years, the student will be able to correlate them with all other clinical branches. Unless the nervous system is to continue to be considered a thing apart in the concept of the whole individual, as is now the case in most of the medical schools in this country, instruction in the recognition of its reactions in health and disease must logically begin at the moment the student receives his first conceptions in clinical medicine and continue throughout the clinical years.

The standard medical curriculum allots 150 hours in the clinical years, 60 hours in the third and 90 hours in the fourth year. Provision is made for instruction in neurology in the third and fourth years, but psychiatry is placed in the fourth year and is given only 30 hours—15 hours under "Clinical Conferences" and approximately 15 hours under "Didactic Lectures."

TIME AND PLACE FACTORS IN NEUROLOGY AND PSYCHIATRY IN THE CLINICAL YEARS IN EIGHTY-FIVE MEDICAL SCHOOLS IN THE UNITED STATES

Class	No. of Schools in Each Class and Subject Divisions					Total No. Schools Teaching Neurology and Psychiatry in Separate Courses. Years and Average Hours.												Average Total Hours in N. and P. in Each Class in Clinical Years	Remarks
							Neurology						Psychiatry						
	Total Schools	N.	P.	N. and P. Comb.	N. and P. Not Taught	Total Schools	Schools 3d Year	Average Hours	Schools 4th Year	Average Hours	Schools 3d & 4th Years	Average Hours	Schools 3d Year	Average Hours	Schools 4th Year	Average Hours	Schools 3d & 4th Years	Average Hours	
A+	22	20	15	2	0	20	9	49	17	75+	7	102+	1	32	15	30	1	42	114+	2 give elective courses in neurology in the 4th year. 4 teach neuropathology in 2d or 3d year; average hours, 25. 2 teach psychology in 2d or 3d year; average hours, 82.
A	32	21	19	8	2	22	15	44+	18	54+	12	81	1	20	19	33+	1	44	98+	11 teach neuropathology in 2d or 3d year; average hours, 40+. 3 teach psychology in 2d or 3d year; average hours, 40.
B	18	10	7	8	0	10	6	33	10	44+	6	81	0	0	17	34+	0	0	97+	4 teach neuropathology in 2d or 3d year; average hours, 33.
C	13	3	1	7	3	3	2	50	2	50	2	100	0	0	1	40	0	0	74+	1 teaches neuropathology in 2d or 3d year; average hours, 120. 1 teaches psychology in 2d or 3d year; average hours, 40.
Tot.	85	54	42	25	5	55	32	..	47	..	27	..	2	.	42	..	2	..	..	

In order to determine what is actually being done in teaching neurology and psychiatry in the clinical years a study was made of the curriculums as disclosed in 1913-14 catalogs of 22 A plus, 32 A, 18 B and 13 C, a total of 85 medical schools in the United States, this number having responded to requests for catalogs. The results of this study bearing on the factors of time and place are shown in the table.

A consideration of the "standard curriculum" shows defects, first, in the preponderance of both time and place in neurology over psychiatry; second, in that no instruction whatever in psychiatry is given in the third year, and third, that both subjects are taught mainly in the fourth year. The same general defects are apparent in the curriculums of most medical schools as is shown in the tabulation.

The tabulation shows specific defects in the following particulars: first, that 5 out of 85 schools give no instruction whatever in either neurology or psychiatry; second, that as far as can be determined from the catalogs, neurology and psychiatry are combined in instruction under the collective terms "nervous and

mental diseases" in 25 of the 80 remaining schools; third, that of the 55 schools teaching neurology and psychiatry in separate courses in both third and fourth years, 27, that is, less than half, give a place to neurology and only 2 to psychiatry; fourth, that whereas in these 55 schools 32 teach neurology, only 2 teach psychiatry in the third year; yet in the fourth year 47 teach neurology and 42 teach psychiatry; fifth, that the average total hours allotted to the department of nervous and mental diseases in the schools of each class is much less than the total hours recommended in the standard curriculum.

Is the total time allotted by the standard curriculum sufficient for adequate instruction even though it were properly apportioned between the subjects? This question cannot be answered until after a trial of what seems to be a proper apportionment of time between the subjects and until the subjects are given a logical place in the curriculum. It seems, however, that the importance of instruction in neurology and psychiatry during the clinical years in the production of competent practitioners should entitle these branches to an amount of time in the curriculum equal at least to that devoted to the nervous system in the fundamental years, which is now approximately 10 per cent., or 200 hours.

CONCLUSIONS AND RECOMMENDATIONS

To the end that an adequate working knowledge of the nervous system in health and disease may come into the possession of a larger number of future graduates in medicine, the following would seem necessary:

1. A better appreciation should be had by medical educators generally of the relations of the nervous system in health and disease to the whole individual.

2. Medical educators should consider neurology and psychiatry as fundamental and not as highly specialized clinical branches.

3. The aim of the instructors in neurology and psychiatry should be to aid the student in the general recognition of disease as well as in the recognition of nervous and mental diseases.

4. Less time should be given to discussion of diseases of the nervous system and more to the practice of simplified yet accurate methods in the recognition of them—thus developing the student's self-activity, self-criticism and proficiency.

5. The principle of relative values should be given greater consideration by the instructors in the fundamental and clinical branches in order that the principle of correlation may be better utilized by the student.

6. More and better apportioned time and a logical place must be allotted to neurology and psychiatry in the curriculums of our medical schools.

Metropolitan Building.

ABSTRACT OF DISCUSSION

DR. CHARLES H. HUGHES, St. Louis: We are in the transition stage in medicine. We have reached a point at which the medical profession is beginning to recognize the value of psychiatry and neurology in general practice. We have become accustomed to locating disease in the different viscera or systems of the organism and from thence judging as to the condition of the patient. As physicians we should consider the mind and brain as well as the other organs, we should consider the patient himself. Neglect of consideration of the patient has built up a lot of "isms" and "pathies" which by proper methods might have been avoided. Neurology and psychiatry in general practice have until recently been much overlooked in general medicine.

DR. GEORGE DOCK, St. Louis: Dr. Graves has made clear most and perhaps all of the important points necessary. I am particularly struck by the fact that people still look on the curriculum recommended by the American Medical Association as a standard, but from Dr. Graves' analysis it would appear that, as regards neurology and psychiatry, the medical schools in the country have not caught up with our standard. That perhaps is not the most important difficulty at present. With regard to the time, I differ from Dr. Graves only in the way of stating the matter. The standard curriculum gave two hundred hours, including the time given to formal courses in neurology and psychiatry, and also to practical work in the wards and outpatient department. It is a great disappointment to us who drew up the curriculum that more of that practical work is not done.

The most important part of Dr. Graves' argument is the emphasis laid on the development of technic. The desirability of this is not sufficiently realized in any branch. Neurology and psychiatry are not alone suffering from certain weaknesses in the method of teaching. Dr. Graves is disappointed because the medical undergraduate is not able to conclude his sensory tests or to recognize pupillary and sensibility changes, etc., as he should. We in medicine find men at the end of the fourth year who cannot positively determine albumin in the urine, or find tubercle bacilli in sputum, although they are easily found, and who are not sure of what they find by percussion and auscultation. We who have been long in the mill realize that the trouble depends on our still faulty method. These boys have not had enough technical training and not enough time in which to work in ward and outpatient department

The student may be taught to test sensibility, pupillary reactions, etc., but unless he works at a lot of concrete examples, as Dr. Graves emphasizes, he does not realize how critically he must work; how much more difficult it is, in the clinic, to detect albumin in the urine or sensibility changes, simply because he has not had the lesson. How will the student profit from a hospital year unless he has been taught to work most critically and unless he has more adequate oversight? We do not sufficiently consider the point that Dr. Graves emphasizes—the need of more and better trained teachers. Perhaps not so many young men are willing to go into neurologic work as in other lines, but the fault is not altogether with the lack of young men. The student goes into a clinic and works as best he knows how; but he has nobody over him to point out that his method of investigating the history or of making clinical and laboratory tests is wrong, and to see that he gets proper training. Everybody who has given the subject thought realizes that the need in every branch of teaching is more actual work with patients, with more oversight by a keen, well educated and specially trained teacher in charge.

DR. E. E. SOUTHARD, Boston: From my experience in teaching neuropathology in the Harvard Medical School, I think one of the most important things in teaching the subject of nervous and mental diseases is to keep the student's mind busy during his whole course with something or other of neurologic interest. The injections of neurologic knowledge should be "spaced injections" during the whole course, with something put in every few months; otherwise the student comes to regard the subject as a matter of no importance. This idea—of neurology as a luxury—is entertained by many internists, and the adequate presentation of these topics may be measured by the degree of interest the internists take. If the internists connected with the school are narrow-minded, neurology and psychiatry will never maintain their proper place either quantitatively or qualitatively. One of the great difficulties in the American system has been that neurology has been regarded as somehow foreign to internal medicine. In Germany and England the neurologist is an internist, and, if called on to diagnose pain incidentally, he at least knows whether it is a case of rheumatism or

stomach trouble. American neurologists are rather proud of their ignorance of internal medicine. On the other hand, the American internists are often proud of their ignorance of nervous and mental diseases. This is also true of pathologists. The pathologists that I know have a blind spot for the nervous system, while the same degree of detail in the kidney will arouse a singular tremor of autonomic vibration in them. They do not care to learn the somewhat complicated alphabet of our subject. The nervous system can secure proper attention in medical schools when there is a corporate spirit. One method is through "correlation committees" dealing with cognate topics as they are taught in successive years in the schools.

The only point I could add to Dr. Graves' discussion of the subject deals with the courses that lie prior to the courses of neurology and psychiatry. An elaborate course of neuropathology may not, in all cases, be secured in the second year; but the pathologists may be stimulated to take more pride in a neglected branch of their subject. There are many pathologists whose neurologic lore hardly goes beyond the diagnosis of a tabetic spinal cord, yet they know and teach about the Kupffer cells of the liver. If the course in mental and nervous diseases can be preceded with pathology in a sense broad enough to include neuropathology and a broad-minded internist is beside the neurologist, then I think you may get action. The work being done in connection with lumbar puncture is transforming neurologists, and to some extent psychiatrists, into internists and I predict that within two decades neurology, so-called, will have disappeared, because the internists will have learned about it, and, finding it somewhat simple, they will adopt it. I think that psychiatry will increase in importance because it will take many more decades for internists to get the social point of view. When consideration of the individual in his relation to society obtains, psychiatry will disappear, because everybody will be a psychiatrist.

Dr. C. R. Woodson, St. Joseph, Mo.: Dr. Graves did not intimate that it was necessary that all who studied psychiatry or neurology should be finished psychiatrists or neurologists, but that it is important that the present-day graduate should know enough about nervous and mental diseases either to give himself, or to diagnose that somebody else may give, timely treatment. A routine treatment of unconsciousness, whether the result of a cerebral hemorrhage, an embolism or a thrombosis, is too common with the general practitioner. To recognize this trouble and to determine its cause is important, not only to the medical profession, but also to the individual. The recognition of mental disease while on the border line is the important thing. The individual who is told that he has appendicitis or gall-bladder trouble, or some other condition demanding surgical skill of the highest character is hustled to the hospital. The individual, however, who has loaded his carrying capacity beyond a healthful resistance, whose condition is the result of concentration of thought or overattention to business, and who is in danger of losing his mind, who is made up of hesitation and doubt, whose mind dwells on himself, who tells the physician he consults that he thinks of taking his life, is in a condition that should be recognized. And until the physician is sufficiently trained to appreciate the fact that this is important, that this patient does not have the power to decide, is devoid of initiative and that the family as a rule does not want to decide for him, these mistakes in practice will continue. While, in such a case, they hesitate and conclude to leave to the patient that which he has not the power to decide for himself, they will hustle the surgical case to the hospital; but the mind of this patient is as necessary as the kidney, the gall-bladder, an arm or a leg. The thing to do is to get him to some place where he can be treated or where they know how to treat him while he is still curable. There is a disposition on the part of many in the medical profession to treat paralysis with strychnin; but in a hemorrhage of the brain inject strychnin, and what will happen? The diagnosis is the important thing. It may be said equally truly of other branches of the profession that students do not come out in four years, capable; but they ought to come out with sufficient ability and knowledge to diagnose a case.

Dr. Walter B. Swift, Boston: I have met the problem of methods of instruction in nervous diseases. When I was made instructor in neuropathology in the Tufts Medical School, I found the students brought very little from courses below which they could use in my course. And the courses below were not to blame. One trouble was this lapse of time of which Dr. Southard speaks. I can add that with charts, lectures and diagrams the students carried little to the courses above mine. I met this problem with success by the introduction of two ideas, repetition and visualization. By repetition I mean this: I repeated in my course all the essential data they should have brought up from other courses, anatomy, histology, pathology. Of four months put on the course, three were spent in review before ever mentioning the new and finer parts of neuropathology. Then one month on that subject. Visualization, however, is the secret of making neuropathology easy. Dispense with all charts, diagrams, didactic lectures preceding demonstration, and first show the tissues; get this well pictured in the mind and afterward dilate in words, but only to enhance that visual picture.

Dr. Charles R. Ball, St. Paul: Formerly mental and nervous diseases to the ordinary medical man were not very attractive. I think now, however, we all realize that conditions have changed. The neurologists have illuminated the subject so well that both surgeons and internists are beginning to look in our direction. We should regard this as distinctly complimentary. Since the excellent work which we have done on the subject of nervous syphilis, syphilographers have united with the internists and show a desire, also, to enter this field. As yet, however, the subject of psychiatry does not appear to be so much encroached on. With regard to medical education, the greatest fault that can be laid against it is the failure thus far to teach students to recognize and treat in an intelligent manner functional nervous diseases. In our method of dealing with this class of patients more reproach has undoubtedly been brought on our profession than in any other class of cases. I hope Dr. Graves' paper may give the impulse to decided reforms in the teaching of neurology and psychiatry in medical schools.

Dr. Hugh T. Patrick, Chicago: In my opinion this lack of interest in neurology and psychiatry and the feeling of inadequacy on the part of the graduate is due to the enormous amount of malpractice which has taken place in the chairs of these departments. I know of no other chairs in medical schools which have maintained as much abuse as have the chairs of nervous and mental diseases. When the subjects of neurology and psychiatry are adequately and properly presented to a medical class, the members evince as keen an interest as they do in any other subject. In present-day medical classes there is a beautiful keenness and anxiety to learn and to acquire a knowledge of the nervous system and its diseases. And I believe that any lack of attention is due to the man in the chair. Therefore the criticism that I would make against medical schools is that they have not always picked out the man who is able properly to instruct and to hold the attention of the medical students, but have selected a teacher for reasons of expediency. Or a man is sometimes given a chair not because he imparts knowledge well, but because he is eminent in his department. That is entirely the wrong basis for putting a man into the work of teaching. He may be head of the department, but he should not be given work for which he is not amply fitted.

Concerning Dr. Southard's remarks, in the school with which I am connected we have tried to carry on this continuity. In the second year the students have a course on physiology of the nervous system given by a member of the clinical staff; in the third year they have a text-book and recitation course, the aim being to give them a clear conception of nervous diseases. That prepares them for the clinical work in the fourth year. And the thing that I think

is of most importance in all these things is not to try to teach too much. The teaching is inadequate, as Dr. Graves has said, but, in my opinion, it is because an effort is made to teach too much. For instance, the teacher himself is interested in some of the refinements of nervous diseases, and he, naturally, teaches what he is interested in. That is a matter of self-indulgence. A teacher must adjust himself to the man on the bench: What can the boy hold in addition to what all the other departments teach? In the next place, give him the fundamentals, the real things he must know. When a teacher of neurology gives his students twenty symptoms of tabes, he is guilty of malpractice. There are only a half dozen symptoms the boy ought to know, but those he must know absolutely; but loaded with too much, he does not know what are the essentials and what are the superfluities and refinements.

DR. WILLIAM W. GRAVES, St. Louis: The burden of my complaint is that because instruction in neurology and psychiatry is put off until the fourth year in many medical schools in this country, the student does not have a chance to learn that it is necessary to consider the nervous system and its reactions in the recognition of health and disease. This is, of course, a serious defect in medical education. To remedy this defect neurology and psychiatry must be given logical place in the curriculum; that is, from the beginning to the end of the clinical years and the subjects must be given adequate time, that is, one hundred and fifty hours at least during the clinical years.

PRESENT-DAY PUBLIC HEALTH ACTIVITIES *

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Health Commissioner
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Perhaps in no other field of scientific progress is the axiom that "the luxuries of yesterday are the necessities of to-day" more true than in that of public health.

Let us apply this to the laboratory alone and we will have the verification. What was formerly scorned as indicative of ignorance is now used as a matter of necessity.

So various have become the branches of the many activities in public health work that their mere enumeration with but slight comments would occupy the scope of this paper. I will devote brief attention only to those in the limelight.

Complaint is frequent, and sometimes justly, that there is too much paternalism, that too many persons exist at the expense of the public and that the number who slip through life from birth to death without worry as to who pays the bills is constantly increasing. Legislation and private philanthropy combine to assist. While they do not give the comforts they at least provide the necessities.

In many cities, and this is especially so in Buffalo, there is a close cooperation between the Department of Health, Police and Education, and the various private philanthropies. While formerly it was considered proper to tell your troubles to the police, it is now essential to transfer them to the Department of Health. Such messages by mail and telephone are so rapidily increasing that with us it has become a part of our regular work.

Some of the work formerly done by the police has been transferred to the Department of Health, notably that of caring for the insane. Forcible restraint has been replaced by medical care.

Permit me to enumerate some of the most important activities.

VITAL STATISTICS

For many years this country has been too busily occupied with what was considered more important matters, and for that reason many details had to be neglected. As the country grows older it learns much by experience. Many of our customs and laws are the result both of experience and evolution. Vital statistics is one of these. No great importance was attached to this subject; births and deaths were considered as part of the laws of nature. It was not even considered unusual that pedigreed animals should be registered and accurate records kept. This was a question of commerce and justified on that ground, but when it came to vital statistics, the making of a record of every child born, and a record of every human being who died, it was considered red tape. Experience gradually showed that this was not red tape, or the effervesence of some officious mind, but an actual necessity. As this feeling gradually grew on the public they began to comply, and in the greater part of this Union it is an obligation, not only recognized but made mandatory by law.

The question as to how this can best be accomplished is a debatable one, and the answer to this must also rest to a great extent on experience. It has been shown that so long as the registration of births and deaths is left discretionary, just so long they will be incomplete. Incomplete records are worse, at least for statistical purposes, than none at all. It is a public delusion. The public believe where a registration is in force that all vital statistics are recorded. Where it is discretionary perhaps the very records that are sought will not be found. Therefore, the only way to ever obtain correct records is to make registration mandatory and to provide an adequate penalty for neglect. This was the contention which we, in Buffalo, made for the past twenty-four years, and under which we succeeded in getting perfect records of deaths and almost perfect records of births. For many years other communities disputed this point with Buffalo and said that it savored too much of European autocracy.

It is a pleasure, however, and a justification of Buffalo's course to note that the model vital statistics law, which has been adopted by the state of New York and certain other states, is based on this theory as being the only one by which accurate vital statistics can ever be obtained.

ISOLATION AND CONTROL OF COMMUNICABLE DISEASES

Nothing in public health activities has made greater progress and nothing has undergone greater evolution than is shown in the question of communicable diseases. Those of you who have been in public health work for the past twenty years or more will agree with me that there is no comparison between the methods employed then and now. While even at that time epidemics were no longer looked on as the visitation of Providence, yet some of the methods in use were still remnants of the same theory. In no other line of public health work has science played a more important part. With the aid of the laboratory, we have learned the cause of most diseases, and with this knowledge came the result in methods. We no longer quarantine diphtheria for an arbitrary period, but only so long as the germ manifests itself. As in diphtheria

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

so in other communicable diseases, our knowledge has spread and gradually our methods have changed.

COMMUNICABLE DISEASE HOSPITALS

Hospitals for communicable diseases are more and more coming into general use. I do not care to discuss this subject at any great length except to express the belief that they will be a great factor in the control of the diseases mentioned.

HOSPITAL SOCIAL SERVICE

Among the great changes in hospital work, none is more important than recognition of the vicious relationship between poverty and disease. Many maladies are dependent on the attributes of poverty, insufficient food, want, bad housing, etc. Remedying the disease and returning the individual to the same condition is a labor lost, and the method of following cases to their environment and bettering conditions there is a movement in a direction that is corrective in a true sense of the word, and will be productive of results in the highest sense of the word.

TUBERCULOSIS

It is a sad commentary on the many and great activities both by public health authorities and by many private philanthropists throughout this country, that in spite of their varied activities hardly any impression is made on pulmonary tuberculosis. This statement may be disputed by some. With the amount of energy concentrated in this one direction it would seem that a corresponding amount of results ought to be accomplished. During the past few years many societies have organized to assist their respective localities in exterminating this disease. Public sentiment has been worked up to a degree never before witnessed. With the cooperation of the public, everything that the human mind and medical science can advise is being done. Consumption has been made a reportable disease. Its victims are looked after, instructed, provided for, isolated, segregated, and the public in general has been carefully instructed as to all the questions involved. Hospitals and sanatoriums have sprung up almost like magic in city and country for the exclusive treatment of this disease.

And yet in spite of all this we stand aghast and note with consternation the fact that consumption claims as many, and sometimes it seems even more, victims than it did before.

Here is a subject for reflection. Here is food for thought. I will not attempt to enter into a discussion as to the reason why. I leave it for you. For you, who represent every section of this great country, to take this thought home with you to look over the situation as it pertains to your own locality to compare with that of others and if possible to offer a solution. I can state, however, that I can almost see that the next generation will surely reap the benefits of this constant warfare on the white plague. So let us keep at it unflinchingly.

CLEAN-UP WEEK

The yearly municipal clean-up week, a distinctive American innovation, is an activity that has come to stay.

In addition to its material benefits, its educational feature is not to be overlooked. For weeks, the press, with its characteristic liberality, heralds its approach, and sings a daily song of cleanliness and health that is not lost; the scholar brings home a lesson to the household with the moral weight of its source, and the Boy Scout, now an active and important participant, receives an education in civic duty that cannot but influence the man of to-morrow.

The experience of Buffalo is that the clean-up week is yearly growing more popular, and its beneficent results in proportion.

SWAT THE FLY

Stimulated by results obtained in making the Panama Canal region safe, the world awoke to the possibilities of exterminating the mosquito and fly. The results have been marvelous. The slogan "swat the fly" superseded that of "the fly that does not wipe its feet" — the former is shorter, but the latter more expressive. "The Fly That Does Not Wipe Its Feet" was the heading of an article printed in the *Bulletin* published by the Buffalo Department of Health in 1908. It was copied extensively from the Atlantic to the Pacific and in some European countries. There is no doubt as to its effect. The many fly campaigns waged everywhere are sufficient evidence. Permit me simply to emphasize one thought. I would suggest the selection of "catch the fly" to replace all others. In our experience the question of fly extermination depends chiefly on catching the flies and the best way of so doing is by fly traps set at places where flies mostly abound whether it be in the house, the barn, the manure heap, or the garbage pail. It is useless to swat the individual fly and let the million escape. It is also useless to inaugurate fly campaigns for the purpose of rewarding those who produce the greatest number of dead flies. There are many unscrupulous enough to create fly hatcheries for this special purpose in order to receive the remuneration.

Therefore "catch the fly," and catch him with a fly trap.

Aside from this, "prevention" has become the great goal of all public health activities. The old axiom about an ounce of prevention had a beautiful sound, but seldom with a tangible response. This has been replaced by the popular cry of "safety first," and by common consent public health authorities have been shouldered with the responsibility of general prevention. This summarizes the entire question of isolation and control of communicable diseases. It is not a question of education or publicity so much as a question of authority to act.

VENEREAL DISEASES

The treatment of venereal diseases has too long been left in the hands of charlatans and leeches who suck out the gold while they frighten their victims into a silence. Their victims are numbered by the thousands. Why this disease, which always has and always will exist, should be left in the hands of quacks and unscrupulous persons, rather than treated by reputable physicians or assisted by municipal authorities, is explainable only through the delicacy felt by the unfortunate victims. At one time patients suffering from cancer or tuberculosis considered the same privacy as essential, and in some places this condition is still met, but it is gradually fading. We can readily understand why a man or a woman, who either innocently or otherwise, has acquired a venereal disease, should shrink from permitting that fact to become public property. For the same reason they do not always consult their family physician whose counsel

and help would be inestimable. In order to preserve their secret they usually consult advertising quacks and learn, when too late, that they have done the very thing they sought to avoid. The quack who can thrive only by fraud, deceit, and everything that is unscrupulous, throws out such alluring baits, both as to his guarantees to cure and his work without pay, that the victim allows him to proceed. It is soon found that these guarantees and promises must be met by the patient with the required amount of cash and the patient finds that this is but the beginning of a continuous blackmail. Is it any wonder that we have hereditary syphilis, that our asylums are becoming more and more crowded, and that our suicides increase?

In many parts of the country, health departments or private philanthropies, or both, have started reactionary measures, such as making venereal diseases reportable like other communicable diseases, making free examinations for gonorrhea and syphilis, providing hospital care for those in need, and what will perhaps be the most efficient of all, the inauguration of a system by which the influence of the venereal quack is minimized. This is done by a systematic meeting of the quack's methods. Public water closets, which are plastered with venereal advertisements, are decorated with warning cards. Public advertisements in the press are offset by other advertisements issued for the purpose of calling attention to the impossibilities of fraudulent advertisements, the impossibility of curing as guaranteed, and the impossibility of any person existing and continuing to do business under heavy expense without proper remuneration, and, therefore, the impossibility of treatment without pay, and finally advising such unfortunates what to do. All these methods are valuable. Each has its advocate, and each must leave an impression.

From many years of observation I maintain that nothing will be accomplished until authority is vested where it belongs, namely, in public health departments. My first plan would be to make it impossible for any person to practice a medical fraud. It would seem that there is already sufficient law covering this point, but it is difficult to enforce. The influence of the quacks, through the millions which they spend in advertising is so great as to render it extremely difficult to put them out of business. In Buffalo we have succeeded in abolishing a few of the worst ones by merely obtaining a fraud order from the Postoffice Department by which it was impossible for the quack to receive mail, and which also made it impossible for the papers containing his advertisement to be mailed. Under this procedure alone it seems to me that the entire army of quacks could be wiped off the map. No community will tolerate another person who advertises deceit and fraud, and why the medical quack should be given preference is difficult for the ordinary person to comprehend. Not only this, but it is an insult to the common decency of every community.

MEDICAL SCHOOL INSPECTION

Although this is one of the newer methods employed in various cities, yet its popularity has been so immediate that every town or city of any pretention whatever has some form of medical school inspection, especially in the state of New York, where it has been made compulsory by state law. The Fourth International Congress on School Hygiene, held in Buffalo in 1913, and whose proceedings have just been issued from the press, has greatly advanced this public health activity. It is therefore unnecessary to enter into this subject at length, but merely to say not only that much has been accomplished, but also that it is difficult to see how we were able to get along without it. Medical school examiners, school nurses, dental inspectors, dental dispensaries, eye, ear and throat infirmaries, are now all looked on as necessary adjuncts of school life. The question has been raised as to whether medical school inspection properly belongs to the health or school authorities. In Buffalo we have formed a combination of the two and consider this the best solution.

Open air schools have likewise swept the country, but as far as I know Buffalo again has the distinction of having the first school in which tuberculous children are treated, and at the same time educated. If there be any class of children whose minds should be cultivated while their bodies are treated, it is the tuberculous. Physically handicapped, it will be necessary for them in adult life to depend more on their mental abilities, and for this reason, if for none other, their mental requirements should be attended to at the same time that their bodies are made well.

THE SUBNORMAL CHILD

The segregation of mental defectives, better called the subnormal children, is another great question worthy of more attention than has thus far been given to it. As a rule when these unfortunates become too old to attend special classes they are turned loose into the world to become criminals. Suitable provision should be made whereby they can be restrained and cared for until they become self-sustaining.

Does medical school inspection and school nursing deprive the regular practitioner of his legitimate work? At first glance it would seem so, but in Buffalo the opposite holds true. In the course of a year's inspection thousands of pupils are discovered with various physical conditions or diseases requiring treatment. These are all sent to the family physicians, instead of being cared for by the medical school inspectors. Most of them would have escaped for years, perhaps forever, to their own detriment, and to the loss of others; and instead of remaining a community liability became valuable community assets.

CLOSING SCHOOLS IN EPIDEMICS

With our present knowledge of treating communicable diseases it seems strange that many physicians of experience should still hold to the obsolete theories of checking an epidemic by closing the schools. In my mind there is not a single justification for such an act. We have many schools in our city containing from one thousand to three thousand pupils each. Take one of the latter for instance: If we had one hundred cases of any one infectious disease in it, why should 2,900 pupils, who are not ill, be deprived of their privilege? As an illustration let me tell you of an epidemic of diphtheria which occurred in one of our largest schools last fall. Case after case was reported within a comparatively short time, and the medical school inspectors were instructed to locate the source. Every child showing any symptoms of coryza or any clinical evidence of diphtheria was culturized, and, if the culture was positive, excluded. Still new cases cropped up daily, and as a result every person in the school, from the principal to the janitor, was culturized. In that way a number of diphtheria carriers

were found and excluded. This broke up the epidemic at once. Had the school been closed the carriers would have remained at large undetected and would have continued to spread their disease. What holds good in diphtheria is also applicable to other diseases.

FREE PUBLIC BATHS

Buffalo has the distinction, as well as the honor, of being the first city in the world to establish and maintain absolutely free public baths. Several so-called "free baths" existed prior to ours, but inasmuch as they charged a penny for soap and towel, they could not be considered free, even if the charges were only nominal. We have two such baths situated in different parts of the city, in buildings erected especially for this purpose, with separate quarters for males and females, and each bathing establishment also containing a laundry where the bathers may wash their garments, place them in a steam dryer, and find them ready for wear by the time they are through with their bath. That these free baths and laundries are appreciated is shown by the fact that over 300,000 men, women and children make use of the baths annually, and over 10,000 make use of the laundries.

The city of Buffalo considers this a splendid investment. Only shower baths are used, there being no plunge. By standing under a shower there is no possible chance for personal contamination, and each bather is given a piece of soap and a clean towel on entering, which they are again required to deposit on leaving. Prior to that time we had free bathing on the beaches of the lake and river, which was limited to the short period of summer. For those who could afford it we had public bathing establishments and private clubs. Within recent years, however, a number of our public schools have had swimming pools and bathing facilities added, which are likewise free; but in spite of all this the popularity of our free public baths continues.

EDUCATION IN PUBLIC HEALTH

This subject ought to be added to the curriculum of every medical college. Workers in public health appreciate this. Many a student receives his degree of Doctor of Medicine who cannot even make out an acceptable birth or death certificate. The Buffalo Department of Health has offered the medical department of the University of Buffalo all the facilities at its command, whereby the students are given opportunity to study the methods of our department in all its phases, from the conduct of the general office to the inspection of schools, tenements, etc. Every medical student is now obliged to take this course, which is bound to bring most excellent results, and be of great value especially to those who in the future will become health officers in the various localities where they may practice after graduation.

LABORATORIES

Preventive medicine, serum therapy and laboratory findings are rapidly displacing the healing art and is giving way to the preventive art, and individuals are treated as much as their ailments.

In this connection no factor plays so important a part as the laboratory, and no practitioner can do justice to the responsibilities in the absence of its aid and resources.

All organized departments maintain a bacterial and chemical laboratory in the interests of the public health and available to the profession where located.

So important are its functions that they are made available to nearby communities who are not able to maintain so expensive an equipment.

In addition to its use in medicine, such equipment, especially the chemical division, is made use of largely in commercial lines. Much money may be saved by subjecting materials to analysis to determine their character, fitness and compliance with specifications; cement, rubber, paint, oil, coal, gas and various other commodities can be subjected to tests under such circumstances. The school, public works, and fire and water departments avail themselves of the facilities and the methods adopted by our large industries can be utilized to the best advantage.

ANTITYPHOID VACCINATION

One cannot refer to bacterial work in relation to public health without having in mind the use of the typhoid bacterin administration, its high value and efficiency; this is before the country at this time.

At present our army is and has been assembled for months under the same conditions that obtained during the Spanish-American War, when there were about twenty thousand cases of typhoid and about fifteen hundred deaths. On the frontier and in Mexico since the troops have been gathered, there have been practically none (one or two, I believe, at the utmost) all due to enforcement of the antityphoid vaccination order.

It is accepted that typhoid is contracted in many other ways than by water, through contamination of farm products, milk, etc., and inasmuch as control over this etiologic factor is not as yet as it may be, it appears indicated without question that its administration should be urged, much as with vaccination in small-pox. Buffalo's health department for the past two years has been administering free antityphoid bacterin to all applicants, especially urging it to the physicians, nurses, commercial travelers and all those who spend their vacations in the country, or where the water supply is not beyond suspicion.

SANITARY CONTROL OF FACTORIES AND INDUSTRIES

Many factories and industrial establishments are conducted more or less in an avoidable insanitary manner.

Among causes determining this are the absence of ordinances with specific requirements, indifference of owners in allowing sufficient time for the purpose of cleaning, poor adaptation of buildings, indifference to consequences, and the custom of adapting ordinances to conditions instead of conditions to comply with ordinances.

Many advances, however, have been made, ingenious devices and appliances offset unhealthy occupations, poorly ventilated and lighted factories are growing less, dressing room and other facilities are being supplied, while many of the large representative places are ideal in their equipment.

The operations of the new New York State labor law are bringing about advantageous changes in all these matters.

Conditions in the retail food industry, however, are a fertile field for activity, particularly in the closely congested sections with recent arrivals to this country, and in the case of small places. Fly and dust protection and improper association for foods is most difficult to secure, by reason of ignorance, and the want of appreciation of the significance, especially as the

enemy (germs) is an invisible foe and the distinctions in cleanliness do not appeal.

MILK

While the protection of foodstuffs is one of the foremost works of the day, the activities in milk work are distinctive.

Its importance as a food, its peculiar characteristics and susceptibility to contamination, its intimate association with infant mortality and with tuberculosis, render the duties of conserving it one of great importance and responsibility. It justly occupies a foremost place in the activities of all highly equipped departments. Its consideration here must of necessity be brief, and will be limited to a reference to Buffalo's activities the past few years, and some thoughts in connection therewith.

Six years ago Buffalo was supplied by about two thousand uninspected dairy farms in all sorts of conditions; it was brought to the city under unprotected transportation, distributed by about three hundred dealers, and for reasons beyond control at the time was without systematic inspection, and much of the milk was characterized by a bacterial count in the millions with colon, and much of it unfit.

The work by my direction was placed under the supervision of W. H. Heath, a former officer of the Public Health Service, and now chief of the Bureau of Food and Drugs, with instructions to systematize it with safeguarding requirements and get results.

The changes were radical. The inspecting corps was increased, a dairy farm inspection service established, a standard for production and for admission adopted, which included a bacterial limit of five hundred thousand and no colon, and ordinances were enforced.

As a consequence of rigid enforcement and administration the findings to-day are that it is produced by but fourteen hundred dairy farms (600 being discontinued) under routine inspection, distributed by but 250 dealers under routine inspection and living up to ordinance requirements.

The milk is examined as it comes from the producer and compared with findings as delivered to the consumer, and discrepancies as to character and contamination are acted on in accordance. As high as 95 per cent. comes in under requirements for admission. Poor milk is the rare exception. Fewer activities are characterized by a more satisfactory evolution from the detrimental to the desirable.

Within but a few years milk inspection was from a commercial point of view, and the influencing factor with the public was the cream line. All milk looked alike, and the important matter of its contamination and possibilities were unknown and unconsidered. Through department activity and dissemination of knowledge through the press, settlement workers and other factors, a different attitude is in evidence, and there has been a general awakening on the part of the householder in regard to milk notwithstanding which, however, there is not, as yet, that sympathetic interest which should obtain.

It has been said that a community can obtain as safe a milk as there is demand for and money to pay with, but this can come only through enlightenment, and an appreciation of the conditions. To that end, therefore, as public health is largely a purchasable commodity, a department should advertise, make use of the daily press and talk to the entire community. Provision should be made for space and at stated intervals pertinent information on health matters and guiding information on foodstuffs and the industries should be made public. Advantage should also be taken of other methods of getting to the public, and street-car advertising, by methods that appeal to the eye, are suggested.

THE MILK BOTTLE AN EDUCATOR

It has also occurred that the milk bottle could be made use of; that it could have a mission and carry a message in its daily entrance to the household. It could carry a label or tag furnished the distributor by the department, with brief epigrammatic information how to care for milk, what to do when the baby is sick, the danger from flies and the like. In other words, make the milk bottle an educator as well as a carrier. The message day by day could not but awaken interest and make an impression.

The value of inspection is largely educational, and to that end, an inspector must have the knowledge and be able to convey it to others. A department should conduct, to my mind, a system of instruction for its inspectors, that they can cover this phase of the situation with efficiency. Such action is now in vogue at the present time in the department over which I am in charge.

LICENSING AND EXAMINATION OF MILK DEALERS

In this connection other thoughts have occurred to me. No industry has greater potentialities for detrimental consequences than the milk industry. The careless or ignorant druggist may poison one or two; the plumber through defective work cause sickness of the family; the butcher prostrate a single household through bad meat, but the ignorant or careless milk dealer may, before he can stop, carry infection and sickness to every home on his route.

If the law demands plumbers to be licensed, a drug clerk and even a barber to be licensed and to determine fitness in protection of the public interests, is it not much more important to license a milk dealer?

It is believed that no man should be eligible for a permit to engage in the milk business unless he holds a license to be a milk dealer and engage in such business. A certifying board similar to the board that certifies to the fitness of plumbers should pass on the fitness of those who desire to handle this important commodity. Applicants should at least have a rudimentary knowledge of the relation of milk to sickness, of its possibilities in its relation to the public health, elementary knowledge of what is meant by contagion, the A B C of sanitation, the reasons for cleanliness.

This will eliminate the ignorant and often stupid individual who, at the present time, with the command of a few hundred dollars, may engage in peddling a few cans of milk, and who may be more or less of a constant menace. Such certifying board might be composed of a representative milk dealer, a member of the health department and an outside business man, and could be appointed by the county judge.

PASTEURIZATION OF MILK

When it is considered that a proportion of the milk herds are tuberculous, and that the disease is transmissible, especially in the case of children, a problem is presented that is as cogent as important. As elimination of the infected cow is not feasible from an economic standpoint, and as pasteurization is practicable and efficient, the question of pasteurization of

the city's milk is one of the indications of to-day, and should be adopted by every community.

In view of all the circumstances attendant on such procedure, an important proposition is as to whether a city of moderate size should not maintain a pasteurizing plant in the interests of the public welfare.

The subject is beyond the scope of this paper, but for some time it has been in my mind that the principal contaminating utensil, the milk can, should be sterilized under municipal control, and such action is under contemplation.

If there were a municipal sterilizing and pasteurizing plant available to the industry, it would go far toward eliminating some of the most serious of the detrimental possibilities.

It is my intention at an early day to bring this matter before your attention, as I believe it would justify your consideration.

REGULAR SOURCE OF PUBLICITY

Nothing adds more to the value of public service than publicity. It can seldom be overdone. The public has a right to know not only what the law requires, but also what the health department does. I have often noted the serious results obtained through concealment. The public has a right to know that an epidemic exists just the same as it has a right to be proud of the fact that the community is free from disease. In my department I have employed three principal methods—a regular monthly bulletin published by the department containing twelve pages and having a circulation of ten thousand with each issue. I have found this bulletin sufficiently large to give in a condensed form the activities of the various bureaus of the department, as well as giving much information pertaining to public health which I know the public appreciates. These bulletins are issued free and mailed to the physicians, dentists, undertakers, midwives, clergymen, school principals and teachers residing in the city of Buffalo, and to other residents who apply for it.

All information contained in a department publication should be authentic, should be up-to-date, and should be edited by some person familiar with public health work, having the confidence of the medical profession and considered authority on such matters. In this way only can the confidence of the public be reached and maintained.

The other method which I have adopted and found to be of great value is to disseminate information through the daily press. In a large city so much occurs continuously that it would be impossible to wait for the issue of its monthly bulletin, much less to crowd in all that should go. The daily press therefore becomes a necessary adjunct. Like other news the health department information thus reaches the public while it is yet news, and is therefore of greater value. The influence of the daily press is also a matter of common knowledge, and this influence is a necessary adjunct for any public health department.

The third method is the distribution of small hand circulars of the most concise nature. These are printed in the several languages most commonly used in the municipality.

I am not much of a believer in voluminous medical articles in weekly or monthly magazines. These contributors often write against space, at so much per line, with a corresponding loss of the value of their production.

INFANT MORTALITY

Not so many years ago infant mortality and "the survival of the fittest" were always associated in the minds of the public. Parents took it for granted that a certain number of children were born to die in infancy. As civilization advanced, the number of births gradually reduced, but the number of deaths was not reduced in the same ratio. Then it was that the question of infant mortality received such consideration that every feature entering into the cause was carefully investigated. It was found that this was not an ordinary result of natural conditions but a simple question of cause and effect. Efforts were then started toward preventing the cause, and the effect is becoming apparent everywhere. The percentage of deaths in every well-organized community is annually growing smaller. Wherever this is not the case it indicates carelessness or inactivity. Most of you can recall the time when long tube nursing bottles were common in every household when milk was permitted to remain at the most convenient place; when flies were if not a welcome at least a necessary adjunct; when garbage and filth were thrown out of the nearest store or window and permitted to accumulate; when no attention was paid to food and drink; when nobody ever thought of investigating dairies or examining cows; when milk was milk and that was all there was to it.

I might continue to multiply this list, but my only object is to show what was and to call your attention to its elimination. We may summarize it all by "cause and effect."

While education played an important part in these results, I am afraid that it gets more credit than it deserves. When you ask this question, I am sure your answer will be the same for your locality as it was for mine—that while education and publicity play important parts, the chief credit is due to adequate laws by which the health departments are enabled to back up their demands in an efficient manner. People are the same the world over. As much as they may agree to the justness of your request the majority will never comply unless your request becomes a demand and that demand can be properly enforced by law.

This is what has made the great impression on infant mortality and has reduced it from what, years ago, was a blot on the country and a criminal insult to our intelligence to a state which, while yet far from ideal, can at least be called satisfactory.

FUTURE ACTIVITIES

Now that the reduction of infant mortality has been properly looked after, let us devote some attention toward the reduction of adult mortality. Far too many die during the best years of their lives from organic diseases. Their activities are cut short at a time when their services, or at least their experience, is worth the most. However, this subject is so great and so important that to enter into it properly would again carry me beyond my time allowance. Let me only say that I consider this one of the greatest of future activities in public health work. I believe that we ought to reduce the various organic troubles of adult life as we have reduced the causes of infant mortality.

In thanking you for your attention, I beg your indulgence. The responsibilities of a department

with widening sphere of action, the many claims on time incident thereto, have necessitated the hurried preparation of these remarks, at a time usually devoted to sleep and rest. If, however, they will awaken some interest and elicit discussion, their purpose will be more than fulfilled.

Municipal Building.

ABSTRACT OF DISCUSSION

DR. W. A. EVANS, Chicago: I know of no separate statistics in this country that are in greater need of standardization than the baby death-rate. It is so easy to show the cause of death of babies under 1 year of age, that some years ago I accepted the conclusion that, in considering the infant death-rate we must totally disregard the cause of death as given on the death certificate—it was so thoroughly undependable. The question then arises how we shall estimate the death-rate of babies living less than a year. In view of the faulty birth registration in most of our communities, probably the most accurate method is to estimate the death-rate on the basis of population under 1 year of age. It would be difficult for me to conceive so rapid a drop in death-rate; and I must believe that a good part of it is due to the fact that the attention drawn to it served to change in the direction of greater accuracy the cause of death as it appeared on the death certificate. When I went into the department of health in the city of Chicago, one of the things needing serious attention was what should be done about the baby death-rate. Men who were engaged in caring for babies told me that, in their judgment, the evidence from a clinical point of view did not indicate that infantile diarrhea was to be handled as a bacterial disease. We know that, from the point of view of bacteriology, proving a bacterial cause for infantile diarrheas has met with indifferent success. As the result of our investigation the situation developed to include milk (which came under the auspices of the health department), and nursing (which is, in the main, extragovernmental). Our death-rate has not improved, though the milk-supply has.

DR. J. W. TRASK, Washington, D. C.: What Dr. Evans says with regard to the method of calculating mortality rates is all too true, especially for this country. Improved registration of births will give an apparently decreasing or falling infant mortality; and that applies to the whole country.

DR. W. S. RANKIN, Raleigh, N. C.: Dr. Evans has suggested that the fall from 134 to 92 deaths from diarrheal diseases of infants per hundred thousand population is due to greater accuracy of the physicians in making out the death certificates. The evidence bearing on this suggestion will be found in the relation of the drop in the special death-rate to changes in the general death-rate. If there is a similar decline in the general death-rate, the evidence is against Dr. Evan's suggested explanation; if, on the other hand, there has been a decline in the special death-rate without any similar decline in the general death-rate the evidence favors Dr. Evans' suggestion.

DR. C. AM ENDE, New York: I have been for several years in charge of the children's clinic and I have found that, usually, in the summer time the cases of diarrhea that come to me are largely affected by the incomplete sterilization of condensed milk; and when I explain to the mothers that they must boil the condensed milk, together with the water they use in its dilution the diarrheas stop promptly.

DR. C. HAMPSON JONES, Baltimore: If we can get away from the idea of having any special day or special week for city cleaning, it will be better. In Baltimore we have been trying to do this for some time; and I think we are approaching success. A large number of the police force are in the day service, and constitute a moral rather than an active force in the control of violations of law. We have obtained the cooperation of the police commissioners in having the day policemen perform sanitary work in the direction of constant inspection of the yards, cellars and alleyways of properties on their respective beats, with power to enter whenever they choose to instruct the people what to do; and, if those instructions are not carried out, to invoke the law and to arrest. I don't know how successful it is going to prove; we believe that it will be excellent; and, finally, it will do away with the piling up of filth until the cleaning-up day.

DR. CHARLES J. HASTINGS, Toronto, Ontario: I have always taken decided exception to this "clean-up day" or "clean-up week"; my idea is to make the clean-up process a continuous one. It is not possible to depend on the complaint system; because in the parts of the city that it was most needed the inhabitants were practically all in the same ship, and therefore were not going to complain of each other. Complaints usually come from the better districts of the city. Therefore, I had the city divided into (twenty, at present) sanitary districts, and one man held responsible for each district, and he patrols it regularly. In addition to that, we have the cooperation of the police officers of the city, who are required to make a note of any insanitary conditions they see, and are furnished with blanks on which they report to the department of health. While, as Dr. Fronczak says, there is an educative value in drawing the attention of the public generally as in a general spring house-cleaning, yet I feel that if we want to get our cities cleaned up and keep them clean, we must divide them into sanitary districts and have competent men in control over those districts.

DR. DAVIS FURMAN, Greenville, S. C.: I live in a small town and have been connected with the health board there for some time. Quite recently we provided for a clean-up week. We have a pretty good corps of officers, whose duty it is to look around town and see that everything is clean; but the clean-up week brought to the surface tons and tons of hidden garbage; and it was evident that whitewash, soaps, varnish and disinfectants were freely used, even by the negroes. We made it a little more interesting by offering some premiums for the cleanest ward.

DR. FRANCIS E. FRONCZAK, Buffalo: The idea of having a clean-up week is not to have the city clean that particular week only. The purpose is to arouse in the ignorant and those who are, as a rule, slovenly and uncleanly, ambition to fall in line and do, during the clean-up, what others are doing the entire year. Clean-up week not only is a forcible reminder to the people that they should keep clean their houses and homes, but gives the idea of adorning their surroundings; and, of course, there is a friendly, neighborly competition in this regard. One neighbor after clean-up week will have a fine lawn prepared; soon you will see others doing the same. This is our experience in the last few years. For the clean-up week we interest the population for about a month; we get the police department, the fire department, the boy scouts, the women's organizations, the housekeepers' leagues, the business men, the chamber of commerce and others to cooperate. The chamber of commerce officials told me that during the last clean-up week they found a great number of fire risks in the factories and stores that would never have been found had it not been for clean-up week. This is the result of negligence on the part of the employees. Store employees throw everything in the cellars and forget to remove it; factories sweep the dirt in a corner and leave it. This clean-up idea starts the employees to clean up, and they do it completely. The city is divided into sanitary districts, and these are kept clean all the year round so far as can be seen by an ordinary examination, but in the clean-up week we preach the necessity for cleaning up the nooks, corners, attics, barns, etc. I believe that at some future time there will be no necessity for clean-up weeks, because everything will be as clean as it ought to be, because of these educational campaigns.

The Importance of Discoveries in the Field of Infectious Diseases.—The discoveries which have transformed the face of modern medicine have been in the field of infectious diseases, and in no other department of medicine could new knowledge have meant so much to mankind, for the infectious diseases have a significance to the race possessed by no other class of disease, and problems relating to their restraint are scarcely less social and economic than medical.—Welch.

DISEASE AND POVERTY *

J. N. HURTY, M.D.
INDIANAPOLIS

It seems fair to assume that the normal person will not sink into poverty. It also seems fair to assume that illness, disease, deformity and weak-mindedness are subnormal. David Starr Jordan says: "Strong men seek education and make opportunity," and to this might be appropriately added, "They bring things about; they make events occur." Weak men are the opposite of this, and by weak I mean not strong in body or in mind. It is by their works ye shall know them. Disease is itself not an evidence of physical or mental strength. Syphilis is a great cause of poverty, as it is also of insanity. "We were getting along splendidly" said the poverty-stricken woman, "until my husband took consumption." And who must be told of the great poverty that trails consumption? A farmer died of typhoid fever when the mortgage, given in part payment for his farm, was only one-half paid off. His wife and little daughter took the disease and survived only finally to fill fuller the slums of a city where she went with the child when the rich man foreclosed the mortgage. Yellow fever prevented the French from building the Panama canal, and thousands who had invested their all in canal shares were pauperized.

In Mexico there are thousands who have been made blind and pauperized by small-pox, and a writer says there are at least two million blind beggars in China, all made blind by small-pox. It is only when epidemics come, when the greater proportion of lives are threatened, that we realize the meaning of sickness and disease. The ramifications of disease are so complex and far reaching we can have but a hazy idea of what disease means.

And what is disease? Whence comes it? Infectious diseases come to us from previous cases. Syphilis, out of which inefficiency, crime, insanity and pauperism flow in increasing streams, is a disease which is acquired through sin.

A virtuous and a righteous race would not have syphilis and gonorrhea.

It is curious to note that, because of our stupidity, one's very industry may bring poverty. This is illustrated by the occupational diseases. Until very recently society permitted greed to force phossy jaw on workmen who afterward in many instances became paupers. To rear and protect industries, one product of which is poverty, is a queer condition. The prevention of phossy jaw will certainly also prevent all the poverty which might come from it.

Hernia has more than once brought an industrious citizen to poverty.

Cigar-makers, printers and tailors, are especially afflicted with tuberculosis; and on the pauper records appear the names of hundreds who have followed these occupations. A proprietor who does not surround his employees with the best conditions of health is a breeder of disease, poverty and crime.

Feeble-mindedness is a disease condition and produces a world of poverty. One from a thousand stories illustrate this. A feeble-minded girl, born of self-supporting parents, who, nevertheless, carried the taint of feeble-mindedness in their blood, was admitted to the Indiana School for the Feeble-Minded. She was there taught how to cook and to wait on the table, and to a casual observer seemed well fitted for self-support. Fertile as a rabbit, she was turned loose in the world. She mated with a male carrying her taint. In all, eight feeble-minded children appeared and the entire family of ten sunk deep into poverty. There is no cure for feeble-mindedness; it may only be prevented; and there are only two rational methods for its prevention, neither of which society will adopt. And so it happens, as we "blunder on through love and hunger," that the highest services of medical science are rejected, prevention is disregarded and disease follows civilization with its ever lengthening train of degeneracy, defectiveness, delinquency and dependency.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

TUBERCULOSIS AS A CAUSE AND RESULT OF POVERTY *

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It is needless to state before physicians that direct bacillary transmission of tuberculosis is possible. Tubercle bacilli have been found in the placenta of the tuberculous mother and in the new-born babe; but when we deal with the social aspect of tuberculosis we can consider the occurrence a negligible factor because of the relative rarity of direct tuberculous heredity.

Tuberculosis in childhood we have learned to ascribe mainly to a postnatal infection from a tuberculous parent, particularly the mother, and in a small percentage (about 10 per cent.) of the cases among artificially fed babies, to bovine tuberculosis. The predisposition to tuberculosis, which is surely and often inherited, comes from what may be called a physiologic poverty. A child of a tuberculous father or a tuberculous mother brings with it as a heritage a general weakness, its entire physical make-up having the imprint of diminished resistance. In other words, it is poor in its physiologic make-up and has no natural immunity to an invasion of disease. It is particularly prone to tuberculosis and when placed in a tuberculous environment contracts this disease very easily.

It is, however, by no means necessary that both or either parent should be tuberculous in order to produce this physiologic poverty. A badly nourished mother or father, living and working under insanitary conditions, overworked and underfed, will as surely transmit a physiologic poverty to their offspring as any tuberculous parent. Numerous and rapidly repeated pregnancies, particularly in the working woman who must often labor until a few days before and resume her work a week after confinement, are also sure to produce children physiologically poor and ill adapted to resist the ever-present tubercle bacillus.

There are other diseases, such as venereal diseases, alcoholism, etc., which, when present in the parents at the time of conception, will leave the imprint on the offspring. This imprint means great susceptibility to all kinds of diseases and particularly to tuberculosis. A general debility of either one or both parents, especially when it is added to an insufficient income to support

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the family so that there is want of food, clothing, or proper housing, is sure to result in the physiologic poverty of the children.

In large families of the poor it is usually the later-born child or children (fifth, sixth, seventh, eighth, etc.), who contract tuberculosis. This is primarily due to a purely physiologic condition in either father or mother, or in both. The parents are older and less vigorous, the mother particularly is worn out by the frequent pregnancies. Very often as a result of her own debilitated condition the mother cannot nurse the child, and artificial feeding, which is always worse for the child's natural growth than the healthy mother's milk, must be resorted to.

The second reason why the later-born children contract tuberculosis more frequently than the first-born is purely an economic one. So long as the family is small the father earns enough for all and the mother can devote her time to the care of the children. With the increase of the family there is very rarely a corresponding increase in the earnings of the father. The mother often has to help in the support and even then there is less abundance and less good food for the many mouths to be fed, less care can be bestowed on the later-born children, and all have to be contented with more crowded and poorer living quarters. In taking the history I always make it a point to inquire of the patient whether he was the first, second, third, fourth, fifth, etc., born in the family, and the statistics I have gathered in this way show that the later born in large families contract tuberculosis more frequently than the first-born.

Child labor, the curse of our nation, still prevalent in some of our states, impairs the physique and is in many instances the cause of tuberculosis in our young people. When the earnings of the parents are small the children will be forced into this sort of work so long as it is not absolutely prohibited by law, and when, because of tuberculosis in a family, children at the age of 8, 10, or 12 years must help in the support, working at home or in factory, they are almost certain to become victims of the disease.

We know that the housing problem is most closely allied to the tuberculosis problem. There is enough statistical evidence to show that tuberculosis is preeminently a disease of congestion. This evidence is to be found in the "lung blocks" of our large cities and the congested cheap lodging-houses, in labor camps, prisons, reformatories and schools.[1] The carefully collected statistics of the great city of Berlin show that 42 per cent. of all the cases of tuberculosis occur in families occupying but one room, 40 per cent. where they occupy two rooms, 12 per cent. where they have three rooms, and 6 per cent. where they have four or more rooms.

Maurice Fishberg[2] of New York investigated the housing condition of 217 families living in New York, the greatest and wealthiest city of our continent.

These families consisted of 1,369 persons of whom 1,129 lived at "home" in 717 rooms and slept in 658 beds. That is about two to a bed and 1.57 people to a room including kitchens. Of the 274 tuberculous persons only 112 had separate rooms and only 136 had separate beds. Some consumptive mothers slept on chairs or on the kitchen floor.

Fishberg very justly says that this state of affairs is usual in all industrial centers of the United States.

Is it any wonder that we come to look on every child born in such environments as a candidate for tuberculosis?

Not only in the homes of the poor but also among the homeless, who must be still poorer, bad housing conditions are responsible for much tuberculosis and its concomitant misery. The Health Department's statistics of New York show that the lodging-houses with an accommodation of only 17,500 people furnish in tuberculosis hospitals and clinics combined, 1,504 cases, or 8.8 per cent., of the total number reported in Manhattan, although the lodging-house population is only 0.75 per cent. of the total population. Mr. Charles B. Barnes in the *Journal of the Outdoor Life* for April, 1914,[3] shows that the lodging-house population is eleven times more subject to tuberculosis than the average population. In connection with this, I cannot help quoting from Mr. Barnes the following impressive words: "It is easy to see why so many men with tuberculosis gravitate to the cheap lodging-house. When the friendless or near-friendless man gets so weakened by his disease that he can earn little or no money, he is perforce compelled to go to a cheap place."

All cheap lodging-houses in small or large cities are evidence of poverty, misery and degradation. Those who have ever visited this class of habitation, in reality usually unfit to be inhabited by any human being, will realize that cheap lodging-houses are veritable breeding-places of tuberculosis. Many lack light, all of them lack air and proper ventilation, and not one of them is either sanitarily constructed or conducted. The tuberculous visitor to these lodging-houses will leave the traces of his tuberculosis in the form of dried sputum on the floor, wall, or blanket. The underfed, badly clad, non-tuberculous lodger, who will next occupy this cubicle, the enclosure supposed to represent a room, is almost certain to contract the disease.

The percentage of tuberculosis in our prisons and reformatories[4] is six times as high as among the population outside the prisons, which means that 6 out of every 100 prisoners, besides being condemned to serve a certain time in prison, are at the same time condemned to contract tuberculosis. And this we allow to continue in spite of our modern conception of phthisiotherapy and penology.

Congestion is of course equally detrimental in workshops, sweatshops, factories, offices and stores, and the only reason why sufficient attention is not paid to congestion in these localities is the difficulty of obtaining satisfactory statistics.

Dr. Bertram H. Waters, in a recent contribution,[5] showed how very frequent tuberculosis is among the garment workers of New York City, the majority of whom work in our crowded and insanitary sweatshops or so-called factories, located mainly in the tenement-house districts.

That tuberculosis is most prevalent among the poor, or as I may more justly express it, among those who receive low wages, is too well known to need statistical evidence; however, it is interesting to recall here the oft-quoted statistics of Hamburg which show that the highest mortality is in families with a maximum earning of $300 per year, being three times as high as in

1. Knopf, S. A.: Tuberculosis and Congestion, New York Med. Jour., Sept. 4, 1909.
2. Fishberg, Maurice: A Study of the Child in the Tuberculous Milieu, Arch. Pediat., February, 1914.
3. Barnes, Charles B.: Tuberculosis Among Homeless Men and in Lodging Houses, Jour. Outdoor Life, April, 1914.
4. Knopf, S. A.: The Tuberculosis Problem in Prisons and Reformatories, International Prison Commission, Fifty-Eighth Congress.
5. Waters, Bertram H.: A Statistical Review of the Work of the Tuberculosis Clinics, New York Med. Jour., Oct. 28, 1911.

families whose income is $1,250, and about four times as high as in families earning $6,000 a year.[6] If such statistics concerning congestion and wage earning would be taken in the United States, I am sure the fact that tuberculosis is a disease of low wage would be amply shown. In the experience of a single charity society, the New York Association for Improving the Condition of the Poor, it has become very evident that the prevalence of tuberculosis is in the majority of instances the result of insufficient earning on the part of the head of the family.

Thanks to the courtesy of Mr. William H. Matthews, director of the Department of Family Welfare, I have come into possession of the advance sheet of a report soon to be published, from which I will quote the following:

> The low wages of many of the men whose widows and orphans had to be taken care of by the society may well be given as one of the reasons why many of the families were more or less dependent before the husband's death. Again, the result of the low wage, insufficient to supply the food, clothing and shelter necessary to healthful existence undoubtedly meant that the bodies of the men, women and children were exposed to diseases that especially prey on underfed, poorly clothed and badly housed people. Tuberculosis cut short the lives of 40 per cent. of these men.

Their minimum wage was $8 and their maximum wage $18 per week.

In the letter accompanying this report Mr. Matthews says:

> Generally speaking, as I read relief-case records and go in and out of the houses of our families, I am constantly depressed as I note the amount of poverty and want that comes through the presence of this disease (tuberculosis), and again with the fact that poverty seems responsible for the quick hold which it gets on so many of our families; that is, it appears in terms of both cause and effect, and it is often difficult to determine where the line between the two may be drawn.

When tuberculosis has entered the homes not only of the absolutely but even of the moderately poor, or the families of the well-to-do, it proves to be one of the most costly of all diseases, particularly if for one reason or another the patient cannot enter a public institution. In the best and most economically conducted public institutions the maintenance of a tuberculous patient costs at least $10 per week. If the tuberculous invalid happens to be the principal breadwinner of the family, poverty and suffering of all is sure to be the result, and unless the disease has been discovered early and a speedy cure is accomplished, the poverty of the family is liable to become as chronic as the disease itself.

The fallacious belief, still prevalent among the masses, that whisky will prevent and cure tuberculosis has produced a goodly number of alcoholics; while, as is well known, instead of being a preventive, alcohol is a strong predisposing factor to the disease. Of course, just as poverty may be the cause or the result of tuberculosis so alcoholism may be the cause or result of poverty. The drunkard who spends his earnings for alcohol will become a pauper. But in justice to many unfortunate sufferers among the poor, it must also be said that it is because of the horrors of sickness and poverty that some cannot resist the temptation to seek forgetfulness in the cup.

I believe what has been said thus far suffices to show that tuberculosis is as often the cause as it is the result of poverty. But whatever little merit my humble contribution may have through presenting these facts to the medical and the lay world, unless I can offer some remedy, the mere reiteration of what is known to all physicians and laymen interested in the tuberculosis cause will have little value.

Before making any suggestions, however, a word should be said on the subject of the annual cost of tuberculosis in the United States which, were it not for our vast resources, would be enough to impoverish the nation. A very careful and conservative estimate of the economic cost of tuberculosis in the United States was made by Professor Irving Fisher in 1912.[7] He estimated the number of deaths at only 155,000 per annum and considered a minimum estimate of the monetary losses which these deaths represent as follows:

Loss to the patients		$665,000,000
By sickness	$145,000,000	
By death	520,000,000	
Loss to others		570,000,000
By sickness	220,000,000	
By death	350,000,000	
Total		$1,235,000,000

As Professor Fisher told me afterward, he had not in this estimate included the cost of tuberculosis in childhood. In a paper which I presented before the Section on Hygiene of Infancy and Childhood of the International Congress on Hygiene and Demography in the same year,[8] I estimated the average duration of the life of the 50,000 children who die annually from tuberculosis in the United States as about 7½ years, and figuring the cost to parents and community for each life at only $200 per annum, the financial loss thus represented is $75,000,000; and these children have died before they have been able to give any return to their parents and the community. Add these $75,000,000 to Dr. Fisher's estimated cost of tuberculosis in adult life, we find that we are spending $1,310,000,000 for a preventable and curable disease.

Now let us see briefly what would be our financial gain if we treated all the patients, young and old, at the right time and in the right place, while the disease is still curable.

I recently attended the celebration of the tenth anniversary of the Gaylord Farm Sanatorium at Wallingford, Conn., with which it has been my privilege to be affiliated since its inception. The institution, which is supported partly by philanthropy and partly by state aid, exists for the purpose of curing the incipient and early cases of tuberculosis and restore the patients to their full earning capacity. Here is the result of ten years work, and the figures speak for themselves:

Gaylord Farm Sanatorium, Actual Earnings of discharged patients up to May 1, 1914		$1,400,000.00
Total expenditures to May 1, 1914, Lands, Buildings and Equipment	$195,958.08	
Interest on above at 5 per cent.	55,178.94	
Total maintenance	345,298.64	
		$596,435.66
Excess patients' earnings over expenditures		$803,564.34

These statistics are carefully compiled by Dr. David R. Lyman, the able superintendent of the sanatorium, and I vouch for their accuracy.

6. Gottstein, R., in Brauer, Schröder and Blumenfeld: Handbuch der Tuberkulose, i, Johann Ambrosius Barth, Leipsic.

7. Fisher, Irving: A Revised Estimate of the Economic Cost of Tuberculosis, Tr. Nat. Tuberc. Assn., 1912.

8. Knopf, S. A.: Tuberculosis and Other Diseases in Schools and Colleges, New York Med. Jour., Jan. 25, 1913.

It is by carefully tracing and watching over the patients discharged from the institution that Dr. Lyman and his co-workers have been able to gather these statistics. It is by keeping tab on all the patients who pass through tuberculosis clinics, dispensaries, and hospital sanatoriums that an infinite amount of good in the aftercare of the cured patients or those in whom the disease is arrested can be accomplished. I go even further, however, and say that in order that our institutions, sanatoriums, hospitals, clinics, dispensaries, and preventoriums for the tuberculous adult or child shall be really effective in diminishing the number of cases and thus prevent tuberculosis from becoming the cause of still more poverty, the home of the patient should be visited by a social worker, not only after the tuberculous patient has passed through the sanatorium and graduated therefrom, but on the day of entrance. By an investigation of the home life of the individual admitted to an institution we should find out why that man, this woman, or this child became tuberculous, and immediate steps should then be taken to remove the cause and thus prevent other members of the family from contracting this costly disease with its wake of suffering, misery, and death.

The next and most important thing for us to do is to teach the masses that quality is better than quantity in the raising of a family. A universal and periodic examination of all citizens for tuberculosis and other poverty-producing diseases should be made obligatory; the poor should be examined free and the well-to-do should pay a reasonable fee. All individuals discovered to be tuberculous should be placed under medical care. Predisposed children should be educated in preventoria and open air schools. The pregnant woman should not be allowed to work as a wage earner for two months before and for one month after confinement.

In view of the fact that thousands of grown-up men and women are seeking work, there is not the slightest excuse for the continuation of that abomination and disgrace to our nation known as child labor. State and municipal labor bureaus should be established to send those seeking work where workers are needed. A minimum wage law should be established and be framed so as to assure a living wage to every living citizen.

To improve the housing conditions of the masses we must have better housing laws and their more rigorous enforcement. But that alone will not suffice. Our philanthropists, big and little, must listen to the call of duty and help to build more model tenement houses or individual sanitary homes for which the rent shall be low, and not keep the land unoccupied for speculation until greater congestion shall have increased its money value.

For the homeless man, there should be decent public places where for a reasonable sum he may find sanitary living quarters by day and by night. The employers of men and women in factories, workshops, stores, and offices must bear in mind that light and air and reasonable working hours increase efficiency and make their employees more loyal and helpful. Our brothers and sisters, morally diseased and confined in prisons, should also be thought of in our combat of tuberculosis. Congestion, underfeeding, bad sanitation, and bad treatment of our prisoners will react inevitably on the health, happiness, and prosperity of the community. The more sanitary are our prisons, the less crowded and congested they may be, the more humane we are in the treatment of the inmates, the more of these unfortunates will be redeemed. In short, unless there is more humanity and social justice, a more wise administration of all 'round state and municipalities, a greater willingness of our well-to-do citizens to help in overcoming tuberculosis as a disease of malnutrition, bad housing, and low wage, we will continue to have tuberculosis as a most frequent cause of poverty, and poverty again causing tuberculosis, and we will continue to lose 200,000 valuable lives annually, representing a loss of nearly a billion and a half dollars to the community.

It should be considered the duty of every municipality to teach the masses temperance, sanitary living and how to prepare nutritious food.[9] This should be done by means of popular literature, lectures and demonstrations. To relieve the underfeeding of the masses, I favor such institutions as are known in Germany as *Volksküchen*, that is to say, public kitchens where substantial, nutritious meals for an entire family can be purchased at a minimum price.

I cannot conclude this report on tuberculosis as a result and cause of poverty without referring to one feature which has been thought of very little, except perhaps by those who look on the tuberculosis problem in all its aspects from a medicosociologic point of view and which was expressed eloquently and forcefully in a recent address by Deputy Health Commissioner Haven Emerson of New York.[10] Many corporations, employers of large bodies of men and women and even some state and municipal departments now require a physical examination for tuberculosis before they accept any one in their employ. By this precaution these corporations, employers and governmental departments surround themselves with those physically best fit to do their work. What is the result of this ever increasing and from some points of view most laudable practice of examining all candidates for employment and excluding the suspected or tuberculous? Are we are creating a large army of persons declared by this exclusion unfit for the struggle of life? Tuberculosis must then also be held responsible for this source of increasing poverty among the seemingly unfit. It is a tremendous problem which thus confronts our statesmen and political economists, and indeed all of us. At this time I feel myself not prepared to suggest any other solution, except the inauguration of universal and obligatory insurance against disease, infirmity and old age (including, of course, tuberculosis) by state government or by private insurance companies under state control, similar to those in Germany for all working men or women earning less than $1,000 per year. There should be also encouraged a voluntary insurance by those earning more. For the insurance for the former class the employer should be held responsible.

As an additional means to provide sufficient sanatorium and hospital facilities, a special tuberculosis tax should be levied on house and factory owners enabling the municipal authorities to construct, equip and maintain such much needed institutions, because of the very beneficent examination for tuberculosis of many employees and workers and their exclusion if

9. Lusk, Graham: The Fundamental Basis of Nutrition, Yale University Press.

10. Emerson, Haven: Address at the dedication of the Mt. McGregor Sanatorium for Tuberculosis Employees of the Metropolitan Life Insurance Company.

found afflicted with the disease. Lastly, I would wish to make as strong and as earnest an appeal as possible to statesmen and philanthropists for the establishment of industrial colonies in which such unfortunate workers may have an opportunity not only to support themselves and their families in decency, but by which the opportunity for their complete reestablishment to health and vigor may also be afforded.

As a conclusion to this necessarily rather meager report on a great and overwhelming theme, permit me to quote the following paragraph from the "Tuberculosis-Day Prayer" of my inspired friend, Professor Walter Rauschenbusch of Rochester, N. Y.:

O God, we pray Thee for all whose vigor is being drained by slow and wasting illness. . . . Since we are all jointly guilty of the conditions which have bred their disease, may we stand by those who bear the burden of our common sin and set the united will of our community against this power that slays the young and the strong in the bloom of their life. May this death that creeps from man to man be a solemn reminder that we are all one family, bound together in joy and sorrow, in life and death, that we may cease from our selfish indifference and together seek Thy kingdom and Thy righteousness which will bring us health and life.

16 West Ninety-Fifth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KNOPF AND HURTY

Dr. Woods Hutchinson, New York: Poverty is a medical problem, first, because of the heavy part that disease plays in its production. The most laborious and carefully thought-out report of the recent English Royal Commission on Poverty states that, in the commissioners' judgment, at least from 55 to 60 per cent. of the poverty in Great Britain is due to one cause—sickness. The same finding has been repeated time and again by other investigators; for instance, the Charity Organization Society of New York investigated cases of unemployment and destitution. In one winter, of 2,200 families investigated, 35 per cent. were found to be in destitute condition on account of tuberculosis, and 25 per cent. more on account of other diseases. A committee of equalization, to see that every child born into the community shall have everything that it needs in the way of food-supply and education before anybody is allowed to have too much seems to me very urgently called for under the circumstances. As disease and ill-health are such important factors in the causation of poverty, attempts have been made, in most of the civilized countries of Europe, to provide for the medical care of the poorer and less successful elements of the population by some form of government health insurance. It is only a question of time before some such process is brought up for consideration and action in this country. We ought to prepare ourselves to meet that movement and have a body of facts on which we can base our view of what we think ought to be done that every individual may get the best possible medical attention and the protection against disease to which he is entitled. I would suggest that it should be made in some way possible for physicians, particularly younger men, to experiment with some form of annual contract or health insurance on terms to be determined by this organization, including a physical examination at stated intervals, and an inspection of the home and place of work. It can be done for a comparatively small sum because it brings under contribution the considerable percentage, ranging anywhere from 15 to 25 per cent., of the community whose medical care we now perform for nothing through charity, or hospitals, or through uncollectable bills, etc. If we could devise some scheme by which the poorer classes of working men who often cannot afford to pay a $2 fee for a visit can have the benefit of a physician's care by coming into some organization provided and planned by the doctor himself it would be a great addition to the health of the community. This Section should appoint a committee, or should request the House of Delegates to appoint one, to study this problem and see under what conditions some voluntary system of yearly or contract practice could be entered into. The sum that could be fixed for those in poorer circumstances is really much smaller than one would readily believe. The amount fixed under the Lloyd-George bill in England was 8 shillings and sixpence a year—a little over $2; and the physicians of England were making a rate of 5 shillings a year in voluntary organizations of their own and made fairly good and so-called remunerative incomes out of their private clubs.

Dr. Edward O. Otis, Boston: Dr. Knopf has said that tuberculosis is preeminently a disease of congestion of population. I should like to modify that statement and say, it is a disease of the conditions which congestion produces. I think it is a mooted question with us whether or not people can keep in health under congested conditions of city life. One thing is sure, we are never going to get the poor of our larger cities out into the country, and I think that what we must do is to make living conditions wholesome under congested conditions in the cities. We have found out now that it is not foul or stagnant air that is particularly injurious, provided we can keep it moist and in motion. We have learned, also, that tuberculosis may exist quite as extensively in the country districts as in the congested city. I was told some years ago by the commissioners of Minnesota who were appointed to look into the question of tuberculosis with the idea of establishing a sanatorium, that the largest amount of tuberculosis that existed in Minnesota was not in the two cities of St. Paul and Minneapolis, but among the Scandinavian farmers. I have practiced among the poor, as my friend Dr. Knopf has, for a great many years, in a large city among the people of the slums in dispensary work, and I have often found, as I dare say all have who have had similar experience, that the number of children in a poor family was the salvation of that poor family; that when the father was disqualified from working for one cause or another, he was kept from poverty by the children taking up the burden of the family support. I agree with Dr. Hutchinson, that if we can only give the children of these large families a fair chance, they will grow up as healthy and well, and as useful citizens to the community, as the one child of quality, so to speak, in the one-child family, who is not infrequently a failure. Indeed, with us in Boston, unless we had had the immigrants and the large families of the immigrants, the population, so far as the Anglo-Saxon portion of it was concerned, would have been a decadent one, for the purely American race is rapidly dying out. I think we have great hope in the large families of the poor if we can only make their congested condition of living wholesome ones.

Dr. S. A. Knopf, New York: I can but disagree with my friend, Dr. Otis, when he thinks that the so-called modern idea that we can dispense with fresh air so long as the air is in motion and properly saturated is a correct one. I for one will not subscribe to it, and I consider it a dangerous doctrine to teach, at least when we deal with tuberculous patients. Granting even that the exhalation of carbonic acid gas from our lungs is not as injurious as we formerly considered it, there is something decidedly beneficial in outdoor fresh air which cannot be found in the confined air, no matter how much it may be in motion; hence I would strongly protest against any change in our conception of the danger from congestion and I would equally protest against teaching that outdoor fresh air is not so essential to our well-being or the treatment of tuberculosis as was formerly thought. On the contrary, let us continue to preach and practice outdoor sleeping and outdoor living as far as possible. I have no time to enter into lengthy discussion as to the advisability of small families among the poor, the undernourished, and the tuberculously inclined; all I can say is that in my experience among the tenement dwellers in New York I found that in larger families among the poor, particularly where there was tuberculosis, the children die young, but not before they have caused their parents a good deal of

sorrow and anxiety and cost the municipality a good deal of money, and all in vain. This, to my mind, is more race suicide than the prevention of conception in a tuberculous mother. To prevent such a conception I believe is the physician's duty, and I am willing to take the responsibility before the law and my God for every time I have prevented the procreation of a tuberculous offspring and thus perhaps have, if not saved, at least prolonged the life of a mother.

SOME EXPERIENCES WITH ALCOHOL INJECTION IN TRIGEMINAL AND OTHER NEURALGIAS*

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It is a great pleasure to me to be enabled, through the courtesy of the officers of your Section, to place before you the following observations on the alcohol injection treatment, and I hope to learn much from your experiences and criticism. Schlösser's brilliant idea of injection of the main branches of the fifth nerve at their deep foramina, with strong alcohol, has now been on trial for ten years by workers in all countries, and clear indications for its use, and when to avoid it, are now capable of formulation. My personal experience of the method now dates back six years, the first case in which I used it being literally equivalent to a laboratory experiment on a human nerve.

A woman suffering from strong hemiplegic contracture of the fingers was unable to use her extensor muscles of the wrist and fingers, on account of the strong flexor spasm instantly induced. Under local anesthesia with eucain, I therefore dissected out the median nerve above the elbow, and injected it with 5 minims of 80 per cent. alcohol, using a fine hypodermic needle. Instantly the flexor spasm and contracture were relaxed, and she was able at once to extend her wrist and fingers; at the same time analgesia to pin-prick and anesthesia to cotton-wool developed over the anatomic distribution of the median nerve on the hand, while a week later typical reaction of degeneration to electrical testing became evident in the flexor muscles and thenar eminence. Such a result was as good evidence as can be required of the destructive effect of strong alcohol, both in sensory and motor nerve-fibers, and impressed on me, which is by no means yet well understood, that alcohol must not be injected into a mixed motor and sensory nerve, such as the sciatic, for the treatment of pain, on account of the motor paralysis and foot-drop which will certainly ensue.

Many patients who have thus been operated on have escaped paralysis by their good fortune of the operator missing the nerve-trunk and making the injection outside the nerve-sheath. When using this injection in the treatment of chronic trigeminal neuralgia, it is only the third division which contains any motor fibers, and the paralysis of the masseter, temporal and pterygoid muscles resulting from a properly placed injection in the foramen ovale is of small account, owing to the mandible being served by the corresponding muscles of the other side, and also to the fact, when the third division on one side is made completely anesthetic on the lower jaw, lower lip and half of tongue, such patients invariably eat on the other side of the mouth entirely.

In two patients with bilateral trigeminal neuralgia in whom I have injected the foramen ovale on each side at the same sitting, there has been difficulty in chewing and closing the jaw for a few days.

I have had experience with some 200 cases of *chronic trigeminal neuralgia*. The first division, in this type of neuralgia, is very seldom involved alone, pain in the second division being its invariable accompaniment sooner or later, though I have known the neuralgia limited to the supra-orbital distribution for three years before the second division became involved. In one such case, a woman whom I injected four years ago, I first injected the second division at the foramen rotundum, causing deep and complete anesthesia on the cheek, upper lip and upper gum; pain ceased from that moment in the second division, but continued severely above the eyebrow and on the top of the head. I then injected the supra-orbital nerve at the notch, causing deep anesthesia on the forehead and top of the head, with the resultant loss of all pain except over a small area, the size of a shilling, at the back of the anesthetic area on the top of the head, at its junction with the great occipital distribution; here the pain continued in unabated paroxysms, which ceased entirely and permanently with a hypodermic injection of alcohol under the scalp at this area. She is now, four years afterward, still perfectly well and free from pain. This is the only case I have seen of chronic trigeminal neuralgia in which such a local painful area persisted at the extremity of the anesthetic area.

Somewhat resembling the latter case, however, was that of a woman who struck the top of her head a violent blow against a low doorway.

Though feeling very shaken, she went out to dinner that night, but had to leave suddenly owing to faintness and vomiting. Ever since that time she became subject to paroxysmal attacks of intense pain, every few days, referred to the exact spot on the top of the head which she struck. When I saw her two years later, this area was slightly tender, and pressure on it started a slight attack of pain. I therefore recommended her doctor to inject this area hypodermically with strong alcohol, which he did twice, with a week's interval. This cured her pain, and she has never had another attack.

The supra-orbital is the only branch of the first division which I attack, and I have never attempted to reach any other branch within the orbit, as I consider this both dangerous and unnecessary.

The second division, or superior maxillary nerve, may be injected with advantage, either at the foramen rotundum in the sphenomaxillary fossa, or at the exit of the infra-orbital nerve on the cheek. The latter foramen is usually quite easy to find, a needle 3 cm. long being pushed through the cheek at the level of the upper border of the ala nasi, and 0.5 cm. external to it. The needle usually finds the foramen in a direction upward and outward from this point.

A certain amount of swelling and edema of the lower eyelid and cheek always result from this injection, lasting from one to two weeks. This injection may be sufficient to abolish all the pain in certain cases of trigeminal neuralgia affecting the second division, in which the pain is limited to the skin of the ala nasi and lip, when the lightest touch on the lip or nose may start paroxysms.

In the majority of cases, however, the pain is also referred to the upper jaw, and sometimes to the palate, and in these cases the destruction of the infra-

* Read before the Section on Nervous and Mental Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

orbital nerve will fail to give complete, or even much relief. The superior maxillary nerve must then be attacked farther back at its exit from the foramen rotundum, in order to inject it at a point before it has given off the posterior dental branches, and the sensory branch to Meckel's ganglion and the palate. This is a difficult injection to perform properly, so as to cause deep anesthesia of the whole nerve, and it is more difficult to be sure of one's results after the infra-orbital nerve has already been made anesthetic by the peripheral injection. If, therefore, a second division neuralgia clearly involves the upper jaw, as well as the skin of the nose and lip, as it does in the majority of cases, attempts should be made to inject the nerve at the foramen rotundum before injecting the infra-orbital canal.

I use two routes for this posterior injection; the first, and preferably, through the cheek in front of the coronoid process and behind the superior maxilla. Sinking the needle as close as possible to the bone at a point about 6.5 cm. measured from the middle of the external auditory meatus, a 3 inch needle, 0.8 mm. caliber, is directed upward at an angle of 40 degrees, and backward in a line with the ascending orbital process of the malar bone. At a depth of about 5 cm., the needle either strikes the external pterygoid plate, or slips in front of its anterior border into the sphenomaxillary fossa. The pterygoid plate is a useful landmark, as the foramen rotundum lies barely more than a centimeter internal to its anterior border; if, therefore, I find that my needle slips into the fossa without first striking the plate, I withdraw my needle slightly and feel backward with the point for the plate, noting then the depth to which my needle has been sunk. Then maneuvering the point in front of the edge of the plate, I push the needle onward in the same line to a further depth of not more than 1.5 cm. If the needle has been fortunately directed, the nerve will be struck, the patient indicating this by flinching slightly and complaining of pain either deeply at the site of the needle, or else referred to the nose, lip or cheek. It is, I think, quite as common for the twinge of pain to be referred only deeply, and not along the distribution of the nerve. I then inject 3 or 4 minims of 5 per cent. novocain solution, the patient instantly feeling a sensation of a spray over the face, and after two or three minutes light anesthesia will develop on the lip and cheek. Whether this is so or not, I change syringes now, and inject a few minims of 90 per cent. alcohol, taking great care to hold my needle perfectly steady.

Certain difficulties may be encountered in attempting this route for injection of the second division, owing either to the coronoid process of the mandible coming far forward, or to the bulging backward of the antrum in the maxilla. Indeed, it may be impossible to direct the needle between these parts, and in front of the external pterygoid plate, so as to enter the sphenomaxillary fossa. In these cases I then try for the nerve from behind the coronoid process, passing my needle through the cheek about 4 cm. in front of the middle of the external auditory meatus, on the line drawn from the incisura notch to the bottom of the ala nasi, so as to pass over the bottom of the sigmoid notch on the lower jaw. The needle must be pushed in slightly upward and forward, the external pterygoid plate felt for and so on, as already described. With this route there is probably less risk of hematoma from wounding the internal maxillary artery, though the nerve will be hit usually in front of the branch to Meckel's ganglion, instead of behind. Consequently there will be in these cases no anesthesia produced of the palate.

In some cases in which the pain appears limited entirely to the second division, the neuralgia may continue unabated after a successful injection of this division, and disappears only and finally when the third division has also been injected at the foramen ovale. Thus, a man, aged 71, had the infra-orbital nerve divided and torn out for second division neuralgia; after complete freedom for three years the pain then returned in the nose, lip and upper gum with great severity, though the skin of the cheek and lip was totally anesthetic. I tried injection of the second division, both posteriorly and at the infra-orbital foramen, but failed to make any impression on the neuralgia. I then injected the third division at the foramen ovale, causing complete anesthesia of its distribution, the pain disappearing from that moment for two years, since when slight warnings of pain are recommencing.

Much more certain than injection of the superior maxillary nerve is injection of the third division at the foramen ovale.

For this I use roughly Levy and Baudouin's line. Here again, as I have mentioned for the second division, perhaps more often than not when the nerve is struck by the needle, the patient complains of pain situated deeply where the needle is, rather than in the lower lip, jaw or tongue. If my needle is in the right direction, very slightly backward and upward, and at the right depth, varying from 1⅝ inches to 2½ inches, according to the width of the head and fatness of the cheek, when the patient flinches I carefully withdraw the brass wire stilet from my needle, and inject a few drops of 5 per cent. novocain. If any resistance to the push of the piston is felt, the needle may be within the nerve; but if not, I push the needle slightly deeper, and inject a few more drops. I then, after a minute or so, change my syringe and inject a few drops of 90 per cent. alcohol, as already described. Then, after half a minute or so, testing with a pin the lower lip and tongue, the presence or absence of anesthesia is a sure test, as to whether the nerve has been properly injected or not, and the needle must be slightly withdrawn and tried in a fresh direction, until deep anesthesia results from the injection. Rarely is there any risk of hematoma in this method of reaching the foramen ovale, the only artery liable to puncture being the middle meningeal; but I have never known it give any trouble. The internal maxillary artery is usually well protected, as it turns inward well below the level of the sigmoid notch.

When working with the needle to find the nerve, the stilet should always be kept pushed within it up to the point, in order to keep any drop of blood from entering the caliber of the needle. When it is thought that the needle is correctly placed, and the stilet is taken out in order to fit on the syringe, if blood should drip from the needle, the needle should be instantly withdrawn and washed out with saline, as its point cannot have been within the nerve, and if alcohol were then injected through the needle it would instantly cause firm clotting to occur within the needle, so that no further injection could be done. If the needle is directed too far backward, pain may be complained of deep in the ear, owing to the needle pricking the eustachian tube. When this occurs, the needle should be at once withdrawn slightly, and the nerve searched for a little more forward. Care should be

taken never to inject alcohol into the spot when pain is complained of deep in the ear, as complete deafness of that ear, due to eustachian obstruction, may be produced, lasting for many months. This characteristic pain must be distinguished from pain referred to the external ear, which is sometimes produced when the auriculotemporal branch of the third division is struck by the needle close to the foramen ovale; in the latter case the needle should be thrust in for another millimeter, and the novocain and alcohol injected, as already described, when anesthesia will probably soon be produced over the whole area of distribution of the third division.

It may be that all this time the needle has not touched bone at all, but I prefer to feel the under surface of the sphenoid with the point of the needle, as it is a good landmark for the level of the foramen, and the needle may be sometimes slipped along it into the lips of the foramen. Two other bony landmarks I also find of service. Posteriorly, the needle will engage the spine of the sphenoid at less than the required depth, and the bone will be felt to slope deeply inward. This may be used as a guide to the foramen, which lies just in front and above. In a few cases even prolonged searching does not discover the nerve at the foramen, when the usual direction has been first explored, and another bony guide which may then be tried is the external pterygoid plate, by pushing in the needle in a slightly anterior direction, when it should be struck at a depth of 4 or 5 cm. Then, with a slight sawing movement, the point of the needle should be made to slip off its posterior edge, when the foramen may be reached above and behind this point. Occasionally, in abnormally shaped skulls, the foramen may be found much farther in front of the ordinary line than is usual, and in yet others, particularly in small heads of women, the line to the foramen may be directed backward at a much greater angle than usual, quite 30 degrees. In the latter type difficulty may be experienced on sinking the needle in the usual direction, by the point of the needle striking bone, which seems to block the needle in every direction. This is the external pterygoid plate, and the needle must be turned considerably more upward and backward to reach the foramen ovale. Before I recognized this condition, I mistook this bone for the spine of the sphenoid, and in two cases, while searching forward for the foramen ovale, my needle slipped in front of the external pterygoid plate, and struck a nerve, which I then injected, and found to my astonishment that I had produced anesthesia of the second division, when I had been searching for the third division at the foramen ovale.

Another small accident that may be met is that when the needle is directed too low, without taking the under surface of the sphenoid as a guide, the wall of the pharynx may be punctured. The patient will indicate this by complaining of pain in the throat, and if the injection of alcohol be made now, he will at once complain of burning sensation on the back of the tongue. The needle should be at once withdrawn a centimeter or more, and I have never known any harm to result from this.

Although in certain cases, peripheral injection of the infra-orbital nerve may control for a time neuralgia of the second division, I do not consider that injection of the mental foramen is of any real service in neuralgia of the third division. It is a very difficult foramen to find, and even though it be properly injected, the resulting anesthesia of the lower lip and chin does not in any way diminish the pain in the lower jaw, ear or tongue. I never therefore now inject this foramen, but always attack the third division at the foramen ovale.

INJECTION OF THE GASSERIAN GANGLION

When first I practiced injection of the foramen ovale on the dead body using the method already described below the zygoma, I found, practically invariably, that when the needle point was placed within the nerve at the lips of the foramen, without pushing the needle through the foramen, injection of solution of methylene blue infiltrated the whole gasserian ganglion, the stain even surrounding the walls of the cavernous sinus, and even spreading down the anterior surface of the pons. Clinically I have thus injected the ganglion in scores of cases, anesthesia first appearing over the third division, and as more alcohol is injected, a few drops at a time, the anesthesia spreads over the second and first divisions until, after using 1 to 1.5 c.c., the whole territory of the fifth nerve has become anesthetic. The patient indicates this spread of the alcohol by slight burning pain being felt around the eye and top of the head, and on testing with a pin there will be found total anesthesia to pin-prick and to pressure over the whole front of the head on one side, including the eyeball. If the alcohol has been slowly injected a few drops at a time, the anesthesia being tested after each injection, this total anesthesia will begin to fade away after a lapse of five or ten minutes from the first and second divisions, and an hour or so later, or the next day, there will be found slight analgesia on the forehead and cheek only, while total anesthesia persists over the third division.

It is important not to inject more than a few drops of the alcohol at a time, and to wait at least two minutes for testing the anesthesia on the forehead before pushing in any more alcohol. As soon as total anesthesia develops over the forehead and eyeball, there is a possibility that the damage to the ganglion-cells may be so great that the total anesthesia does not evaporate, as is usually the case, though in the majority of cases as much as 0.5 c.c. alcohol may be further injected after total anesthesia appears, without risk of its being permanent. When a total of more than 1.5 c.c. has been injected, this risk is a very real one, and if total anesthesia still persists half an hour after the injection, the eyelids should be closed by rubber plaster and a pad and bandage, in order to prevent the risk of keratitis developing, which is certain to appear on the following day if total anesthesia is still present. If, however, sensation is returning on the first division and pressure on the eyeball can be felt definitely, then the risk is past. When, however, the anesthesia is still complete on the following day, then it is practically certain to persist for weeks or months, and the eyelids should be sewn up, leaving a chink at either canthus for washing out the palpebral cavity with saline. So long as the lids are kept closed, keratitis will not develop, and even a certain degree of keratitis which had developed, previous to the sewing up of the lids, will clear up. I have been forced to have this treatment adopted in seven patients whose ganglion I had injected by this method. The cure of the neuralgia is, however, certain, and likely to be permanent, though my first case of injection of the ganglion dates back only four years.

In many subjects it is possible to push the needle through the lips of the foramen ovale into the ganglion

itself, though this is rarely necessary. A curious point, which I am unable to explain, is that after the ganglion injection which I have described, the anesthesia on the first division is more intense and more lasting than even on the second or third divisions, a point which is peculiarly unfortunate, owing to its dependent keratitis.

In over sixty cases in which I have thus injected the gasserian ganglion, in one case slight diplopia, due to sixth nerve weakness, developed immediately, and did not disappear entirely until three months had elapsed. This was presumably, due to alcohol infiltrating the outer wall of the cavernous sinus. In one other case a curious result occurred which I cannot explain. In a woman aged 64, with chronic trigeminal neuralgia affecting all three divisions on the left side, which had begun three years previously with neuralgia limited to the first division, I injected the third division and the ganglion as described above. As total anesthesia developed, she became giddy and swayed slightly to the left, and coarse rotatory nystagmus toward the right side, with left facial paresis and total left nerve deafness, appeared. There was no trace of loss of consciousness, and the vertigo disappeared after a few minutes; the nerve deafness had disappeared within an hour, and the next morning the facial paresis and nystagmus were scarcely noticeable, and both had completely disappeared in five days, and she felt perfectly well. Though it is possible to conceive that the alcohol might spread along the ventral surface of the pons and involve the seventh and eighth nerves, yet the nystagmus would suggest a central lesion, cerebellar or nuclear.

PATH OF THE TASTE FIBERS

One of the striking results of my series of injections of the third division at the foramen ovale and of the gasserian ganglion has been the very large proportion of cases in which immediate *loss of taste* has developed on the anterior half of the tongue on that side. With almost monotonous regularity my experience has been to find loss of taste to all forms develop immediately on the anesthetic half of the tongue, in proportion to the depth of the anesthesia. I have taken the utmost care in the testing of these patients, and there can be no possible doubts of my results. This loss of taste, as I have said, develops immediately, and the sensation of taste remains absent so long as the anesthesia of the third division persists, and I have seen loss of taste well marked twelve months and two years after injection. In three or four cases I have seen sensation of taste partially present, though obviously diminished, when the tongue showed deep anesthesia, though the auriculotemporal portion of the third division had escaped almost entirely. In five cases only have I seen almost normal acuity of taste persist when all three branches of the third division were deeply anesthetic.

With one exception, in all my cases of injection of the gasserian ganglion in which deep anesthesia of the whole fifth area was produced, there was complete loss of taste on the half of the tongue.

Curiously, in the last ganglion case I injected, four days before I sailed, although there was total fifth anesthesia, taste was scarcely affected, though the anesthesia was total and persistent, necessitating sewing up the eyelids, on account of commencing keratitis.

Leaving these cases aside for the moment, the immediate loss of sensation of taste produced by injection at the foramen ovale is certain proof that in the large majority of persons, the taste fibers from the tongue pass along to the gasserian ganglion by the third division, since the result is immediate and cannot therefore be due to any vascular changes, the result of nerve degeneration, as Cushing has tried to explain the loss of taste he has found after gasserectomy. At the same time, we know that the taste fibers do not pass with the lingual nerve, but leave that nerve by the chorda tympani and run in conjunction with the facial nerve in the middle ear, to the geniculate ganglion. So far the afferent course of these gustatory fibers is beyond dispute, and it is their path from the geniculate ganglion to the pons which has been the subject of much argument. Various routes have been given for these fibers, the one now most in favor being along the pars intermedia of Wrisberg to the gustatory nucleus of the glossopharyngeal.

There is really no clinical evidence for this statement whatever, indeed, what evidence there is is entirely against it, and the chief reason in support of the statement is an analogy between the geniculate ganglion and the pars intermedia of Wrisberg on the one hand, and a spinal posterior root and its ganglion on the other. Now, my results show that in at any rate the majority of cases, the normal path for these taste fibers lies in the third division of the fifth nerve at the foramen ovale. Therefore the gustatory fibers must pass from the geniculate ganglion to the foramen ovale, and the only possible path appears to be along the small superficial petrosal nerve to the otic ganglion.

In some cases I have found that taste was also completely absent on the back of the tongue and palatal arches as well as on the front of the tongue; in others taste was notably diminished on the back of the tongue, and in a few, perhaps one-third, there seemed no loss of taste at the back. Since I have found in three of my cases of complete third division anesthesia that taste on the tongue was scarcely interfered with, I can only assume that in a small proportion of persons, the gustatory impressions from the tongue must pass from the geniculate ganglion along a different route, either by the pars intermedia of Wrisberg, or by the tympanic plexus and the glossopharyngeal nerve.

Bilateral Trigeminal Neuralgia.—True chronic trigeminal neuralgia is occasionally bilateral, in ten of my patients, or 5 per cent., this being the case. In four of my patients it affected both sides before any injection or other operative treatment had been done. In two others it appeared on the right side nine years and four years after gasserectomy had been performed on the other side. In two of the foregoing four cases I injected the foramen ovale on each side for bilateral third division tic at the same sitting, causing total anesthesia of the front of the tongue. This interferes considerably with articulation for a few days, one of the patients—a man—being unable to make his words intelligible for several hours. In the other patient—a woman—paresis of the masticatory muscles was more noticeable, she being unable to close her mouth the first day, and for a week or ten days she could not chew her food.

Geniculate or Otic Neuralgia.—My attention was first drawn to this form by reading the most interesting work of Ramsay Hunt on the sensory supply of the seventh cranial or facial nerve, and also the description by Pierce Clark and Taylor of their case of obstinate tic said to be cured by division of the pars intermedia of Wrisberg. Excluding those cases,

not very uncommon, in which severe neuralgia in front of the ear accompanies facial palsy, or herpes within the auditory meatus, possibly due to geniculate inflammation, I have encountered two patients who suffered from almost identical paroxysmal neuralgia, which had lasted for eleven and ten years, respectively, in which the paroxysms of pain began in the throat or posterior palatal region on one side, and spread into the ear and in front of the ear on to the cheek, and down the side of the neck. The sudden onset and intensity of the pain, and the recurrent paroxysms closely resembled chronic trigeminal neuralgia, but the distribution of the pain made me doubtful as to their dependence on the fifth nerve, and in each case no alleviation was produced by a successful injection of the third division of the fifth. One of these patients was a man of about 48, who had suffered eleven years, the other an old lady of 87, who had had the attacks for nine years.

I have known the pain following geniculate herpes to be most intense and prolonged for many weeks, in a man of 44, without any facial paralysis. This case was sent to me by an aurist, and the herpetic vesicles were still visible on the tympanum and posterior wall of the meatus, ten days after the onset of the pain.

Postherpetic Neuralgia.—This should never be treated by alcohol injection, or by any other operative measure. The most frequent cases that are thus sent to me are the cases of frontal herpes affecting the ophthalmic division of the fifth. Sometimes the destruction is so great that total anesthesia of part of the forehead and top of head is produced; in others only slight numbing and sensation of tightness is felt. The pain varies in severity from a feeling of crawling and similar paresthesias to quite severe paroxysms, though less sudden and severe than in the case of chronic trigeminal neuralgia. Any injection or operative treatment in my experience makes these patients worse, though there may be apparent improvement for a day or two. The same may be said for postherpetic neuralgia affecting the second and third divisions, and the whole of the fifth, which are less common, and also postherpetic neuralgia of the trunk.

I have not yet performed injection of the gasserian ganglion for severe posthepetic neuralgia of the fifth, though theoretically it might effect a cure, yet not certainly so, as the lesion may be partly central and not only in the ganglion, as I have known division of posterior spinal roots fail to give relief in postherpetic neuralgia of the trunk.

Chronic Fibrositis.—This condition of the shoulder, back, buttock and sole of the foot may sometimes derive almost magical relief from alcohol injection. In many cases in which the pain had continued for years, seven years in one case, I have seen it disappear instantly and permanently after alcohol injection. This is perhaps most striking in the cases of plantar fibrositis following rheumatism, the patients being hardly able to stand or hobble about for months, owing to the pain produced by their weight stretching the plantar fascia and ligaments. In five such cases I have produced instant relief, so that the patient could not only walk with comfort, but jump about within five minutes of the injection. My method is to search for points of deep tenderness on pressure and mark them carefully. Then after sterilization with iodin, I sink a fine needle vertically down to the bone, injecting a few drops of novocain on the way. After half a minute 10 drops of 90 per cent. spirit is injected and the needle withdrawn, and the puncture sealed with collodion gauze. Sometimes three or four spots have to be injected, and occasionally a repetition is necessary next day or later, owing to the whole of the affected area not having been covered.

I do not find that this method is of any value in cases of diffuse tenderness, excepting when definite spots of intense tenderness are found. This is sometimes the case in fibrositis of the buttock and occasionally it may accompany a true sciatica. When using this treatment by alcohol injection for fibrositis of the buttock, great care must be taken not to inject the sciatic nerve itself with the drug. I may mention that I also use the treatment of injection of the sciatic nerve itself in some sciaticas with novocain and saline from 50 to 100 c.c.

In chronic *brachial fibrositis,* which is less common, I have also successfully used alcohol injection in six cases; here again precautions must be taken against injecting a nerve-trunk with alcohol. My method, after sinking the needle to the bone in the required spot, is to inject a few drops of novocain 5 per cent., and if no motor weakness or anesthesia has appeared within a minute, I then follow it with the alcohol. In suitable cases of this type the benefit and relief are immediate and most striking.

We are now in a position to weigh our results and to give a definite opinion as to the beneficial effects, or otherwise, of alcohol injection for neuralgia. In certain cases of chronic fibrositis of the buttock, trunk, shoulder, forearm and sole of the foot, it may effect an immediate and lasting cure of the pain, and, when properly used, never does any harm.

Among the cranial neuralgias, periodic supra-orbital neuralgia, such as the postinfluenzal form, with daily recurrences of pain for hours, may be completely cured by a single injection. The pain of inoperable carcinoma of the tongue may also be completely relieved by injection of the third division at the foramen ovale. Migrainous neuralgia, though often mistaken for chronic trigeminal neuralgia, is only rarely benefited by this treatment. Postherpetic neuralgia, whether of the face or trunk, should never be treated by alcohol injection. It is in chronic trigeminal neuralgia that the largest proportion of cures are wrought by this means, and practically its only rivals are neurectomy and gasserectomy. The former gives us no longer relief than neurolysis by alcohol injection, and the treatment cannot be repeated at the same place. With gasserectomy there is the necessity of a severe operation under an anesthetic, with a permanent scar, and the possibility of facial palsy, the frequency of keratitis and of permanent injury to the brain, such as hemiplegia, paraphasia, alteration of character and loss of mental ability. The latter symptoms are to my mind such dangerous and not infrequent possibilities of gasserectomy that I believe the operation should never be performed for the relief of chronic trigeminal neuralgia until alcohol injection has been fully tried by an experienced man. The permanence of the relief from pain in the majority of (not all) cases of gasserectomy is insufficient to weigh against the necessity for reinjection with alcohol that is likely to be necessary at intervals of one to four or five years.

Lastly, let me reiterate the necessity of taking one's time, with absence of all hurry, in performing the injections. Trial and test is, I am certain, the only safe method, and I am never satisfied until I have produced deep anesthesia, for then I know, if my

diagnosis of chronic trigeminal neuralgia has been correct, that the patient will have many months' freedom, and in quite a large number, three, four and five or even more years' immunity from pain.

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ABSTRACT OF DISCUSSION

Dr. Charles R. Ball, St. Paul: I first obtained inspiration for making these injections of alcohol in facial neuralgia about six years ago from Dr. Patrick. The irregularity in the distribution of the branches of the fifth I think often accounts for the difficulty in making some injections. I tried repeatedly in one case to inject the third branch but always failed. One day while attempting to inject the second branch the patient complained of severe pain in the area supplied by the third branch. I immediately injected alcohol at this point and secured a perfect anesthesia in the part supplied by this branch, with complete relief of the pain. The danger in making this injection would not seem very great. In an experience with hundreds of injections, I have had only two accidents which, at the time, seemed apparently serious but eventually came out all right. In a severe and intractable tic doulourеaux involving all three branches of the fifth nerve, I was attempting to inject the third branch when I noticed the development of a facial paralysis on the side I was injecting. My patient, who was past 80, became unconscious, went into a state of collapse and for a period of half an hour it seemed as though she might die on the table. My first thought was that she had had a stroke of paralysis, but afterwards it became clear that I had passed the needle up into the foramen ovale and injected the ganglion. Some of the alcohol had infiltrated back as far as the seventh nerve and induced the facial paralysis. After the patient returned to consciousness I found that a complete anesthesia involved all three branches of the fifth nerve. In another case, in attempting to inject the second branch, I got a severe hemorrhage. The eye, on the same side, began to come forward, just as though some unforeseen and mysterious force were pushing it out of the head. The pupil became dilated and the patient for an hour was unable even to see light. This patient also recovered without any serious injury to the sight. In my experience, Dr. Harris' method of injecting the gasserian ganglion from the point of entrance for the injection of the third branch is more practical and simpler than the method proposed by Härtel. In repeated trials on the cadaver I have been able to place the needle in a better location in the foramen ovale from the point recommended by Dr. Harris than the one proposed by Dr. Härtel. In cadaver injections, with Dr. Härtel's method, the chief difficulty seemed to be in entering the foramen at one side and causing the needle, instead of penetrating nerve tissues, to go through the dense fibrous tissue which lines the bony borders of the foramen. In this location the fibrous tissue makes a complete barrier, and absolutely prevents the alcohol from reaching the nerve or ganglion.

Dr. Peter Bassoe, Chicago: Dr. Harris rightly says that the injection method should not be used when the lesion causing the neuralgia is known to be proximal to the point at which the nerve can be injected. I believe there is one exception to this rule, however, namely, herpetic neuralgia. I saw immediate relief follow injection of the supraorbital nerve in a case of frontal pain which had existed for several months following a severe herpes with corneal involvement. I presume that the explanation for the relief must be that such a large portion of the neuron was peripheral to the point of injection that the entire neuron became impaired. In other words, we may assume that a retrograde degeneration took place. Dr. Harris' remarks concerning supraorbital pain at regular hours as being due to malaria, influenza, etc., are of interest. For the benefit of those who have little experience in neuralgia cases, it might be well to state that probably most pain of that kind is due to frontal sinus disease. I have frequently had sent to me for treatment by alcohol injection cases of frontal sinusitis and pressure within the nose. Dr. Harris said he has seen no good result from injecting the mental foramen. In one case, which happens to be the last one in which I injected alcohol, it seemed to be of value. It was a case of neuralgia of the middle branch, but pain in the middle branch area could be started by rubbing the lower lip. There was no pain in the distribution of the inferior division but after successful injection of the middle branch, rubbing the lower lip still would start pain in the middle branch area. I injected the mental foramen, producing analgesia of the lower lip, and pain could no longer be started by rubbing the lip. What is Dr. Harris' opinion concerning the rôle of previous peripheral operations in making the alcohol injections less efficacious? French observers, particularly Sicard, have claimed that alcohol injections are less successful in cases in which nerve resections have been made. I have sometimes had trouble on account of the foramina having been plugged with amalgam, screws, or other foreign bodies, and even after deep nerve injections it was necessary to remove these foreign bodies to get relief.

Dr. C. D. Camp, Ann Arbor, Mich: Dr. Harris is the pioneer of the injection of the gasserian ganglion with alcohol through the foramen ovale. I read Dr. Harris' first paper shortly after it was published and, after some experiments on a cadaver, I concluded that the operation was an entirely feasible one. I have made three successful injections of the ganglion, using the Harris technic. The details of these cases I published in the *Medical Record*, July 20, 1914. In all of these cases the neuralgia was relieved. My experience differs from that of Dr. Harris with respect to the sense of taste. In all of my cases the sense of taste was preserved in the anterior two-thirds of the tongue, although there was complete analgesia in this region. There were no cases of keratitis in this series. Of course, the usual precautions were taken to prevent any foreign matter from irritating the cornea. The injection of the gasserian ganglion is quite a different proposition from the injection of the peripheral divisions of the fifth cranial nerve, but it is hoped that the destruction of the ganglion will not be followed by recurrence of the neuralgia.

Dr. George A. Moleen, Denver: I have seen most of the neuralgias in the clinics and in the practices of other physicians. I find in about 1,500 case records not over a half dozen trifacial neuralgias. Among those there are probably four or five of what might be termed postmalarial, supraorbital neuralgias that were distinctly amenable to appropriate treatment. I question whether or not the altitude may have something to do with determining the susceptibility of the trifacial nerve. I do not believe that in the entire Rocky Mountain region we have anything like the percentage of cases reported in any one neurologic clinic at sea level. Does Dr. Harris confine his injections, even in the milder cases, to alcohol, or has he, in the case of specific neuralgia, found any relief from the use of salt solution? We see in Colorado quite a number of peripheral facial paralyses, and I have noted, even with careful testing, that taste is not only abolished in the anterior two-thirds of the tongue on the same side in these cases, but also on both sides. Whether that is due to disturbance in the attention, faulty technic, or what not, I am not able to say, but it may account for the loss of taste discovered after these injections. I am quite certain that taste was lost on both sides, having been prompted to test the other side after having found it absent in the ipsolateral side.

Dr. Wilfred Harris, London, England: Answering Dr. Ball, who referred to injection of the seventh nerve with alcohol, I would say that this was the first use to which injection of this agent was put originally by Schlösser in order to relieve the painless form of facial spasm. These unilateral facial spasms are not common, and they are rarely so severe as to cause total paralysis of the face. As to using alcohol in these cases, I have injected this agent a few times, but not recently. I was interested in the first case cited by Dr. Ball, in which in injecting the ganglion through the foramen ovale, he produced facial paralysis and collapse. I have recently seen a somewhat similar condition in a hos-

pital patient aged 60. Total anesthesia developed over the whole fifth nerve area. The woman began to slip over and fall toward me as I was working on the left side, she had nystagmus toward the opposite side, and her face became paralyzed on the side on which I was working. For a moment I thought, Have I possibly injected the seventh nerve peripherally? It was quite plain, however, that I had not done that. When I had finished I investigated more carefully. There was more or less facial palsy, and, a point Dr. Ball did not refer to, she had total nerve deafness as well as this facial palsy. She had nystagmus to the opposite side. In two days there was no trace of the trouble which had developed so acutely and which alarmed me much for a moment. I have never seen any such severe hemorrhage as occurred in the second case mentioned by Dr. Ball, but have read records of severe hemorrhages having occurred; and I am certain that the moment any such sign of hematoma develops the only thing to do is to withdraw the needle and hold on tight, using firm pressure for ten minutes. If this is done the hemorrhage will cease. Dr. Bassoe referred to injection in postherpetic neuralgia. I do not believe this is advisable treatment in those cases. The lesion is proximal to the point where the injection can be placed. Theoretically it cannot be defended, and in practice no good results obtained; on the contrary the patient is made worse. The majority of persons have had that experience in this trouble, and it has been certainly my experience with alcohol injections in those cases. Dr. Bassoe says his patient recovered. Some of these patients do recover spontaneously. I do not find that scars make any difference in the result in peripheral operations, if they do not interfere with getting the needle in the right place. Dr. Cramp referred to anesthesia of the drum membrane. That is a striking symptom. You can touch the tympanic membrane without the patient flinching or objecting, but there is not complete anesthesia because several nerves supply that part. The question as to preservation of taste will, I think, never be settled, but there is no getting away from the results. In about seventy instances I have seen total loss of taste in two-thirds of the tongue on the same side on which the patient still recognized taste acutely on the opposite side; but now and again one comes across a case in which taste does remain unimpaired on the same side, in spite of anesthesia to pain and touch.

THE RELATION OF PHYSICAL THERAPY TO THE HOSPITAL PATIENT FROM THE POINT OF VIEW OF THE INTERNIST *

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The purpose of this paper is to emphasize the rôle of physical therapy in its relation to patients admitted into a general hospital.

It seems proper at this time to indicate wherein the general hospital more completely realizes what hospitals are expected to accomplish. In its physical plant, well-organized medical, and efficient nursing staff, it should represent in highest efficiency the essential coordinating factors for conserving the patient's best welfare.

The primary function of the hospital is to cure disease, and to relieve suffering. A hospital which fails to cure a patient, who is theoretically curable, fails to that extent to perform its proper function.

The subject of hospital care and treatment is the patient and not the disease, so that the hospital should include in its physical equipment and in its medical organization the means of dealing with any pathologic condition, or complication of disease, expected or unexpected, in any individual patient.

The general hospital exemplifies the spirit of modern medicine; consequently, the hospital patient fares best in it, and it is better for the education of the medical student and medical intern to be in the atmosphere of a general hospital.

It may be further said that the establishment of real general hospitals will quicken medical research and investigation, will place adequately equipped laboratories at the disposal of clinicians generally, will facilitate sound medical teaching, will insure a more adequate training of nurses, and will tend to standardize the general efficiency of hospital work.

No hospital can give satisfactory service in all emergencies which does not represent in its clinical and laboratory organization, and in its therapeutic equipment, all that modern medicine is able to contribute of technical skill and expert knowledge to the investigation and treatment of disease.

Physical therapeutic methods have now become an essential part of the treatment of patients in any general hospital. There can be no sympathy with the employment of physical therapy purely for the psychic effect on the patient, for when we consider physical therapy, we are not thinking in terms of psychology, because for such purposes the ingenious physician will find or indicate his own medium.

There must be a definite purpose in the use of all physical agents, as in the application of any other therapeutic procedure.

It is of particular interest to note that the average patient admitted to the general hospital presents a distinct type, in so far as he or she is often in the terminal stage of a vicious cycle (of a nutritive disturbance), whether it be an example of cardiovascular renal disorder, of chronic nephritis, of diabetes, visceroptosis or neurasthenia, it seems so often but an expression of a chronic nutritional disorder. This means usually that an attempt must be made to improve nutrition and to reestablish function, and it will tax the best efforts often to bring about a circulatory, nutritive, or psychical balance, so that even though a cure may not be possible, subsequent living will be more comfortable.

It is but rarely in this class of patients that a special surgical procedure, or definite medical treatment, is the essential requirement; as a rule a more prolonged stay in the hospital is necessary, and this permits a better cooperation of diet regulation and other forms of therapeutic procedure with physical therapy so as to promise the greatest degree of improvement.

It is not the purpose of this paper to consider in detail the different physical methods of treatment, and in fact only a very small proportion of patients coming into the hospital will require the employment of more than one or two, yet it is highly necessary that hospitals should be so equipped as to be able to respond to the demands that any condition may require. The best expressions of physical therapy are not always the most elaborate and costly, and often quite as valuable work can be done with improvised apparatus, accompanied by good sense.

HYDROTHERAPY

Man from his advent has daily experienced the beneficent action of water. As symbolism has characterized all primitive mental expression, so it has been

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but natural that man used water not merely when ministering to his bodily cleanliness, but also as an effort to convey ideas of moral purification. In this way hydrotherapy developed under sacred auspices, and the use of water as a healing agent acquired the dignity of a religious ceremony. Certain waters in the old world gained more or less of a reputation for special efficacy, and to the testimonials of their wonderful cures eminent physicians have at times added their endorsement.

Aside from the mysticism that has enshrouded water as a therapeutic agent, it has always been regarded as a most valuable adjunct in the treatment of various diseased conditions.

There has been a common error to restrict the term "hydrotherapy" to the remedial use of cold water alone, when it should include the application of water in any form, from the solid and fluid to vapor; from ice to steam, internally and externally; again hot water is as important a hydriatic agent as is cold water.

The mineral constituents of water do not often add to the effects produced, since the latter are often the result of the judicious adaptation of the mechanical and thermic influence of water alone.

It is needless to emphasize that every hospital should afford ample material for the thorough mastery of the Brand bath in the treatment of typhoid fever.

The benefit of the Brand bath is not confined to the reduction of temperature alone, and the idea that high temperature is the chief determining cause of fatality in typhoid fever must be abandoned, for it seems justifiable that the failure of heart power is less an effect of high temperature than of other concomitant conditions. The lessened perspiration, the renal disorders, disturbed sensorium and digestive disturbances are all favorably influenced by the Brand bath when properly applied.

In all the pyrexias of infants and young children the warm bath and pack is an equally potent means for reducing temperature, besides assuaging pain and relieving nervous debility, without materially interfering with any of the functions. For this purpose there is no remedial agent which can compare with a full bath of 98 degrees, reduced perhaps to 90 degrees for eight to ten minutes, combined with gentle friction.

Hot baths constitute an important factor in the treatment of every case of cerebrospinal fever, in exerting a modifying influence on symptoms and the course of the disease. In accordance with the contributions of Rosenow, the *Streptococcus rheumaticus* is favored in its development by cold surroundings and inhibited by warm, so that the application of the warm pack to affected joints in acute rheumatic fever not only relieves pain, but may likewise have an inhibitive action on the infective process.

The prolonged warm bath has attained a special place in dermatologic conditions; promoted by Hebra it has proved valuable in extensive burns, while in skin affections like pemphigus foliaceus, it tends to relieve pain, mitigates the fever and restores sleep and digestive functions.

The continuous bath is likewise useful in different forms of cerebral irritability, such as acute delirum and mania; in the bedsores of tabes, myelitis, cerebral and spinal tumor, the advantages of the water-bed will be best appreciated by those who have treated such cases without it.

The value of the warm bath, hot pack and different forms of sweating procedures in the different types of nephritis is generally recognized. In recent years the significance of albuminuria as a manifestation in nephritis has lost some of its import, while more emphasis is being placed on renal insufficiency in the elimination of nitrogen, chlorids and water. The result of this more practical and broader view has been a more intelligent regulation of the hygienic environment of the patient and his diet.

Directly connected with the application of hot water is the hot-air bath in enhancing the reactive capacity of patients subjected to hydriatic procedures.

Experimental and clinical observation reveal a pronounced and often considerable increase in diuresis and elimination of all products of tissue change on the bath days. There is often a decided relief from retention symptoms, the hypertension is modified, headache disappears and gradually the nutritive as well as the circulatory balance can be reestablished.

There is often no more effective measure of relieving the distressing headache of hypertension than the evening hot foot-bath.

We all know that dry heat applied as sand bags, sacks of hot salt and hot bran affords decided relief to various forms of neuralgia, myalgia or other localized pain.

Dry heat of high temperature is not employed for any considerable number of purposes, but a lesser degree of heat is employed in what is termed the baking process used for neuritis, myalgia and the different forms of chronic arthritis. The only drawback to its more general use has been the expense of the necessary apparatus, but it is to be hoped that before long more simple equipment can be obtained at a lesser outlay.

MASSAGE AND EXERCISES: MECHANOTHERAPY

It is only within the past thirty years that massage has been employed to any great extent in this country, and it is largely due to Dr. S. Weir Mitchell in his employment of it in his famous rest cure, that it has begun to receive serious consideration.

At the present time it is a well-recognized therapeutic measure, and has proved valuable not only in combating certain nutritional disorders, but also in surgical conditions. When employed in connection with systematic exercise it is of value in various conditions coming properly in the field of the orthopedist. A practical knowledge of anatomy and physiology, besides the necessary manipulative skill, is highly essential in its application, so that it requires a proper training of the nursing staff or employment of special masseurs by the hospital to obtain the best results.

Massage exercises certain physiologic effects, and on these its application in disease conditions is based. It has a favorable influence on the circulatory apparatus in promoting increased activity, reflex stimulation of the heart, and slight temporary rise of blood-pressure, and aids respiration by lengthening the excursions of the diaphragm.

There is probably no branch of medicine which offers so large a field to massage, or in which more satisfactory results have been obtained, than in the treatment of nervous disorders. Its usefulness may be considered under two heads, one being as a general tonic and stimulant to muscular tissue and the other as a sedative agent.

In the particular individual often referred to as the Stiller type, or habitus asthenicus, in which viscerop-

tosis or splanchnoptosis is the distinctive feature, systematic massage seems often the only remedial measure that promises any relief. A combination of general with abdominal massage exerts a favorable influence on the general state of myasthenia that exists, and thus relieves the distressing abdominal symptoms which form such a prominent feature of this condition.

Various conditions are specially responsive to a judicious combination of massage and gymnastic exercises; among these should be mentioned the different occupation neuroses, and conditions presenting atrophy or muscular spasm occurring in cerebral lesions affecting the motor areas or its cerebral and spinal tracts.

Massage constitutes an important part of the palliative treatment of tabes, and the reeducational movements in ataxia as formulated by Fraenkel have been employed with gratifying success.

In this connection reference should be made to the use of carbonated baths in heart disease, as represented by the Nauheim baths, combined with the passive resistance exercises of the Schott method, or the graduated exercises of Oertel.

In discussing the value of baths and exercise on heart diseases, consideration must be given to what is expected of the treatment. In all methods of cardiac therapeutics, there are three main purposes, namely, those which spare and soothe the heart, those which solicit or revive it and those which repair it.

Rest is an example of the first, digitalis of the second, while baths and exercises belong to the rebuilding kind, and if our demands here overtax the remnant of cardiac capacity, we shall exhaust the heart or overthrow it. We are aiming to make new heart muscle, and to appreciate this possibility in all cases is a task of no little difficulty, so that the application of the Nauheim method should always be made with careful discrimination.

In many disease conditions a systematic combination of several forms of physical therapy is necessary to promote the best result.

There are other forms of physical agents as represented by light, electricity, radio-active substances, and the Roentgen ray, which are effective in certain conditions, yet many of the virtues ascribed to them are more or less speculative, and a complete equipment in all these lines in a general hospital in the light of present knowledge is not absolutely required.

Physical therapy should always be regarded as an adjunct in the therapeutic measures for the relief of disease conditions, and therein lies its main argument for a close relation with a general hospital, since here only is afforded a proper cooperation of a well-organized staff to promote the best results.

The establishment of special institutes for physical therapy is unfortunate, since it offers the same objection as the specialist in relation to general medicine, in that it tends to a restricted point of view as to disease conditions, and often leads to an exaggerated conception of the therapeutic virtues of some particular form of physical therapy.

There can be no question that as physical therapy loses its proper relation to the general hospital, it favors the establishment of separate sects, of pathies based on the use of one or other physical means of therapy. These are distinctly undesirable, not alone in the interest of scientific medicine, but also for the welfare of the unfortunate patient.

Equitable Building.

SIX YEARS' EXPERIENCES AT THE MEDICOMECHANICAL DEPARTMENT OF THE MASSACHUSETTS GENERAL HOSPITAL*

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BOSTON

The medicomechanical department of the Massachusetts General Hospital was founded ten years ago by the gift of sixty-three Zander apparatus from a benevolent lady. For the first three years it was in charge of Dr. Max Boehm, now in Berlin. For the last six years the department has been conducted by me. The accompanying tabulation gives an idea of the number of patients treated and the amount of work done during these six years. The steady growth of the number of new patients shows how the department has become more and more an important factor of the hospital; particularly the surgical and medical departments use it to a considerable and steadily growing extent. These numbers would still be larger, if the nerve room had not enlarged its own department for massage and exercise.

CASES TREATED AT THE MEDICOMECHANICAL DEPARTMENT FROM APRIL, 1908, TO MARCH, 1914

Fracture of humerus, scapula, clavicle	182
Fracture of elbow	227
Fracture of forearm and hand	161
Colles fracture	305
Fracture of spine, ribs, pelvis	19
Fracture of thigh and patella	100
Fracture of leg, ankle, foot	226
Fracture with delayed union	38
Total fracture	1,258
Dislocations	128
Stiff joints (except fingers)	180
Stiff hands and fingers	174
Arthroplasties	9
Contractures and deformities	118
Contusions and sprains	166
Subdeltoid bursitis, a. o. bursitis	331
Myositis	12
Infectious arthritis	370
Septic hand	212
Gonorrheic arthritis	86
Villous arthritis and arthritis deformans	120
Total arthritis	788
Sacro-iliac and back strain	208
Weak back and faulty posture	197
Lateral curvature	276
Total back cases	681
Feet	265
Neurosis	94
Hemiplegia	112
Infantile paralysis	131
Other paralysis	110
Other nerve diseases	100
Total nerve diseases	547
Diseases of the circulatory system	33
Diseases of the respiratory system	16
Diseases of the digestive system	38
Other internal diseases, including debility and convalescence	60
Total internal diseases	147
Miscellaneous	100
Grand total	4,904

The medicomechanical department consists of a large room with the Zander apparatus, a balcony for the special corrective work, two small rooms for massage and manual exercise as well as baking, and an office for examination and manual treatment. As to the distribution of room, the apparatus part of the work is markedly favored, a condition which is not

* Read before the Section on Hospitals at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

in accordance with the needs of a general hospital such as ours, and, indeed, in the plans for a new building much more room has been provided for the manual work. Since I frequently meet in practice erroneous ideas of patients as well as of physicians in regard to the value of apparatus, I shall explain the comparative value of manual and apparatus treatment. A differentiation as to the massage and exercise and as to the local and the general effect of the treatment must be made. As to the massage, it cannot be doubted that the manual work holds the first place. Mechanical massage can be only a very poor substitute, except vibration and, to a certain extent, tapotement. The other manipulations, effleurage, kneading and friction, demand a thorough training and a full understanding of what we have under our fingers. Massage properly done requires a good deal of brain-work.

Machines are a good compensation for the exercise in many ways, but they are by no means a full substitute, nor are they, in my opinion, indispensable in obtaining the local effect. Most of our surgical and orthopedic patients have to begin their treatment with the manual methods of passive and active, assistive and resistive exercise, and become ready for apparatus treatment only when they have gathered sufficient strength to control the apparatus. In those cases the greatest value of the apparatus is that they spare the time of our assistants. On many days sixty, eighty and even up to 100 patients are to be treated in from three to four hours. The average time of one treatment being considered as twenty minutes, which is rather short, we would need at least seven or eight trained assistants, a heavy burden for a charity hospital. The apparatus do not necessarily require a trained attendant, though of course an intelligent and expert supervision is desirable.

For certain local effects apparatus are of particular value, as in furnishing symmetrical stimulations in many paralytic and other nervous conditions. And the so-called promotive exercises in which the moving power is furnished by a turning wheel, a pendulum or an electric motor are of extreme value and cannot be very well carried out by manual exercise.

For the general effect on the circulatory, respiratory, digestive and nervous systems and on the general metabolism the apparatus are of great value and have a decided preference over the manual treatment. It should not be said that we necessarily depend on apparatus, and patients living too far or being too sick to go to the outpatient department could not have proper exercise treatment. Nor would I like to give you the impression that we can do everything with the apparatus. Also in this class of cases the manual exercise has its definite place and cannot be missed.

In close connection with the medicomechanical department is a hydrotherapeutic department in my charge. These departments cooperate freely in that many patients get both hydrotherapeutic application and treatment with Zander apparatus on the same day or on alternating days. Of Bier's methods only the baking is used to a large extent. Bier's congestion by a rubber bandage has been of much value in treating ward patients, but is a method far too difficult of application and too dangerous to be satisfactory in outpatient cases.

The various methods of electrical treatment which represent another branch of physical therapeutics are distributed among the Roentgen-ray and nerve departments. If necessary patients are treated at the medicomechanical and any one of the other departments on the same or alternating days.

The Zander room is a subsidary department in that outpatients have to belong primarily to one of the regular clinics and are sent to the Zander room for treatment. Thus the medical man, the surgeon, the orthopedist or the nerve man makes the indication as to the treatment in the medicomechanical or hydrotherapeutic department. He also may suggest the form of treatment which he considers best, or he may leave this to the surgeon in charge. But it must be insisted that the director of such a department has absolutely free hand to decide as to the form and amount of treatment, as well as to refuse treatment if he considers it not a suitable case. Frequent consultations with the other departments favor a mutual understanding in this direction.

At present the surgeon in charge of the medicomechanical department is holding a position as orthopedic surgeon to the outpatients, while his assistant holds a place as assistant at the same department. This personal union of the orthopedic department and the department for physical therapeutics is in my opinion of greatest value not only to the orthopedic cases, but also for the whole hospital, and becomes more and more so with the growing field of orthopedic work. The value of this union is also acknowledged by the university in the appointment of the surgeon in charge as assistant in orthopedics and physical therapeutics at the Harvard Graduate School of Medicine. We meet the same union in many German university clinics and hospitals as well as in the field of the most important orthopedic journals abroad.

TREATMENT OF STIFF JOINTS BY MASSAGE AND EXERCISE

Before we consider the various lesions which we have to treat, a few words should be said about the treatment of stiff joints in general by massage and exercise. Massage has the purpose to stimulate the circulation and nutrition of the affected limb, to hasten the absorption of edema and waste matters about the joints, within the muscles, tendon-sheaths, bursae, etc., to loosen adhesions between the various layers, to favor the function of the skin. Most useful for these purposes are the long stroking over the muscles, the kneading and pressing of the fleshy parts and the friction of the smaller parts. With any irritation or tenderness still present the friction should be done with a great deal of ease and should not cause any pain. The kneading of the muscles should generally cause an agreeable feeling of relief; it is particularly indicated after the exercises.

Far more important than the massage is the exercise. To be brief, exercise consists of passive and active movement in its infinite varieties. In the treatment of stiff joints the active movement is of much greater value than the passive. This seems a plain, simple statement, hardly worth mentioning, but daily experience shows me that this great principle of functional therapy is not sufficiently understood. Many patients who are sent to the department for the treatment of stiff joints following fractures or other lesions bring a note from their surgeon prescribing passive exercise. Furthermore, we sometimes have the following experience: A patient with a stiff joint being treated at our department reports to the surgical

department. The surgeon, not satisfied with the speed of the progress, gives a few more or less forced passive movements which in almost every case cause an irritation sufficient to interrupt the so far steady progress. Occasionally I have had a chance to prove this observation by exact measurements. Also among so-called trained masseurs the passive movement enjoys a better reputation in the treatment of stiff joints than it deserves. About every one of them who has come to work with us has had to learn this anew.

A joint is not a door hinge, but a complicated and extremely sensitive living mechanism. Its proper function depends on many conditions, inside and outside. A rational therapy should be preceded by a thorough examination clinically and by the Roentgen ray. The examination should find out the condition of the articular cartilage, the thickening of the capsule, any relaxation or retraction of ligaments, adhesions of tendons and tendon sheaths, retraction of the muscles and their perimysium and everything else which might come in question in the individual case. On this examination depends not only the prognosis, but also to some extent the therapy, although the functional principle holds good for all. A type of cases very frequently seen at our department is that which I have described as the traumatic hand, a change likely to come on after injuries of any part of the arm and shoulder. The clinical features of the traumatic hand are, to be brief, marked thickening and tightening of the soft tissues of the fingers, especially around the interphalangeal joints, and in the roentgenogram a marked atrophy of the bony structures. The function of such a hand is always more or less restricted, often the hand is very badly crippled. It is evident that the limitation of function is caused by a severe alteration of the tissues which may be most precisely termed as lack of elasticity. Whether or not normal conditions will be restricted depends on the amount of alteration which has taken place, and on the recuperative power of the patient's tissues in general. Our therapy must do whatever possible to aid Nature's attempt in restoring proper conditions. First of all we should try to improve the circulation and by that the whole nutrition and metabolism of the limb; our best means are baking, massage and especially functional stimulation. The passive exercise if done alone neglects this most valuable factor. It is liable to cause irritation and inflammation, resulting perhaps increased stiffness, as we have frequently seen.

One might maintain that such active movement may be done by the patient himself and he would not need any treatment for this purpose. This is perfectly true, and I think it is much better to leave such a patient alone than to push him through the misery of a poorly managed treatment which might do him more harm than good. Nature is not likely to cause so much damage as a masseur's hand might do, if it is not guided by a thorough understanding of physiologic and pathologic laws. But experience shows that the proper application of assistive and resistive exercise with all the wise suggestions of the Swedish system as to measuring and localizing the active movement can help the patient along in a marvelous way.

Another point of importance in our work is the educative effect as well as the influence on the mind of the patient. I have found many times what an encouraging and stimulating effect it has when you teach your patients how to do things which their crippled joints have not accomplished before.

FRACTURES AND DISLOCATIONS

Relatively the greatest number of our cases consists of fractures. Treatment of fractures is composed of two parts, the proper healing of the bones and the restoration of the function, or, as we may briefly say, the anatomic and the functional parts. In the clinical lectures as well as in most text-books the functional side of the question is considerably neglected. The impression which I have from my experiences may be somewhat pessimistic, since I usually see the worst cases, but even so, I venture to say that much fault will be seen in the end-result of fractures, unless the functional treatment meets that consideration which it deserves.

This is particularly true of the fractures involving or near to joints and it is in this great group of cases that the functional treatment of Lucas-Championnière has had its best results. The idea of this great surgeon has been to follow Nature's example. Now what do we do with a fractured limb? We put it in a plaster cast or on a splint for at least that amount of time which is generally required for the union of the bones and often much longer. Then when we remove the splints we see in a great many cases the involved joint stiff; often joints in the neighborhood and not rarely all joints of that extremity more or less affected, the muscles and all the tissues including the bones much atrophied, the limb useless. A damage is seen which at least frequently is not the direct result of the injury, but is more or less brought about by the treatment. When such a case is referred from the surgical to the medicomechanical department for after-treatment the surgeon should be conscious that he carries the responsibility for the definite outcome.

The separation of the anatomic and the functional part has its practical value, but it is liable to bring up a certain danger. Kocher's word that the function of the limb depends on the good position of the bones is right in only one sense and only to a certain degree. A bad position is liable to disturb the function, but it is not the only, and frequently it is not the main cause of stiffness. On the other hand, that good position may be accompanied by a poor function can be proved by many examples from our records. It is not the place here to discuss the possibilities of carrying out the functional treatment of fresh fractures in a general way. Its principles are sound, though we do not mean to adopt it so far as to leave off fixation even in fractures of the diaphyses. It is often the exaggeration of an otherwise rational treatment which has delayed its general use.

Among the 1,258 fractures there are thirty-eight with delayed union. Many of these patients had been treated a long time before they were sent to our department. In some of them the conditions urged operative interference, but in the majority the treatment with massage and exercise has proved very satisfactory in that bony union was obtained during a reasonable time, while at the same time the function was more or less restored. Reports of a number of these cases were published in 1909. Of the later cases one deserves particular notice:

A man aged 25 years, with a 9-month-old compound fracture of the humerus between the middle and lower one-third. The fragments were very loose and there was a sinus over the point of the fracture. All joints of the left arm and hand were greatly limited in motion. When the patient was referred to me for consultation as to the advisability of an operation I hesitated because of the sinus and because I was

afraid of further delay of the functional cure by fixation after the operation. I therefore asked to refer the patient to the medicomechanical department where he was treated by massage and exercise. After four to five weeks the fragments were practically solid and the sinus was closed. The hand and fingers and to some extent the shoulders had been very much improved in motion and only the elbow did not make good progress. The patient has been under treatment for a long time and his arm has been strong and useful except for the elbow, which showed only about 30 degrees of motion. Had that form of treatment been started seven or eight months earlier, we might have obtained a full functional cure within a much shorter time.

The functional principles in the treatment of dislocations do not differ very much from those of fractures. In the uncomplicated cases functional treatment may be started very early. There is no reason to hold such joints in casts or splints for four or six weeks as we see it done so frequently.

A few words need to be said about the dislocation of the elbow. In these cases there is a certain danger of ossification along the tendon of the brachial muscle. Since the injured periosteum is readily subject of extravagant production of bone tissue, any irritation must be carefully avoided. This is also necessary in the treatment of fractures near joints where an abundant formation of callus may do much harm.

STIFF JOINTS

Under the head of stiff joints are classified joints affected by operations, wounds, burns, etc. They do not need any separate discussion, but a word may be said about the time when it is wise, in my opinion, to begin the after-treatment in cases of suture of tendons of the hand. Most of those cases had been splinted for four to six weeks after the operation. When they came to us the hand was stiff and often required a treatment of many months to make it limber again. It seems to me that ten or twelve days after the operation gentle exercise can safely be started provided the wound is well healed.

The same mistake of too long a fixation is invariably made after the radical operation of Dupuytren's contracture. Splinting such a case for four or five weeks, as I have frequently seen, without giving the patient at least a chance to move his fingers is dangerous and has led in some of our cases to a prolonged stiffness, some having never well recovered. This is all the more dangerous, because the patients are usually of an advanced age. In a case like that I apply a splint for two weeks constantly and for another month over night and begin with gentle active and passive movements on the third or fourth day after the operation.

The same experience I have had with tendon transplantations. Several patients came for after-treatment as much as three and four months after the operation. During that time the transplanted tendon had become firmly embedded in scar tissue and the hope of obtaining any active function of it was entirely gone. There is no reason why the exercise treatment in such a case should not be started three or four weeks after the operation at a time when the tendon is still movable. Then we need the functional stimulus for the formation of a new tendon sheath which is necessary for the definite function. About the other affections in this column everything necessary for the understanding of the treatment is included in the previous paragraphs and in that on arthritis.

ARTHRITIS

The value of physical therapy in the treatment of the various forms of arthritis is generally recognized. We may distinguish an effect as to the actual cure of the disease and as to the restoration of the function of the affected joints. In regard to the infectious arthritis in its various manifestations we maintain the modern point of view in that it is our first duty to study each case in order to find the focus of the disease. We know that with the elimination of such a focus the case may clear up according to the amount of pathologic changes. The place of physical therapy, therefore, in regard to this indication must be a secondary one, but nevertheless its tonic effect is frequently of great value in strengthening the patient's lowered resistance against the known or unknown enemy.

With any acute inflammation still present the affected joints must be kept quiet, but gentle massage applied to the muscles centralward acts often decidedly pain lessening and relieving. Baking is not advisable in the acute stage; it may irritate the joint and aggravate inflammation. Bier's congestion treatment has given us sometimes excellent results. We have had a number of cases with infectious arthritis of the gonorrheic type and others in which the patient had not slept for several nights because of the intense pain and the application of the elastic bandage stopped the pain almost immediately. The technic of this method is perfectly simple, but in my experience, frequently misunderstood.

The most difficult question perhaps is how soon to begin with the exercise treatment in order to restore the limited function. Doubtless many cases clear up without any particular after-treatment, but there are others, probably of the fibrinous type, in which a marked degree of stiffness may remain, when fixation is sustained for too long a time, and sufficiently gentle exercise treatment can certainly shorten the time of disabling very much. When to begin in such cases must depend on the experience of the physician and on his technic to carry out such a treatment. It needs a well-trained hand to treat such joints effectively and carefully at the same time.

The treatment of arthritis deformans in its various manifestations as hypertrophic and atrophic arthritis is a difficult and discouraging chapter of medical therapy, but of all that we can do for such patients the physical therapy occupies a prominent place. Hydrotherapy, thermotherapy and balneotherapy, massage and gentle exercise have given us at times encouraging results although we usually get our patients with anatomic alterations so far advanced that anything like a cure is out of the question. We have had quite a number of patients at the Zander department who showed a distinct improvement in mobility and strength. Even in old neglected cases it is worth while to make a trial, provided the patient can furnish the necessary energy and endurance.

BACK CASES

With the change which the explanation of sciatica and lumbago has undergone in recent years, following the well-known investigation of Goldthwait and others, the treatment of these widespread conditions has become more rational than before. A better understanding has led to a clearer application of an etiologic therapy, instead of the purely symptomatic treatment which heretofore has largely been used. A

revolution in ideas like that, however, often causes neglect of methods which have deserved their merits from experience. This has been the case in our clinic in regard to the application of physical therapy, especially massage and exercise. The number of cases of this type referred to our department is very small in relation to the large material treated at the outpatient department. Such neglect is very much to be regretted, because appropriate application of physical therapy has sometimes given us very satisfactory results even in old cases in which all orthopedic measures have in vain been exhausted. However, we recognize the difficulty of thoroughly carrying out this treatment in outpatients. These results are not surprising in the light of the modern theories. We have learned that in many cases of sciatica and lumbago the pain is referred from lesions of the sacro-iliac, lumbar and lumbosacral regions which may be intra-articular or extra-articular. When we consider the effect of rational physical therapy in many other articular or periarticular affections elsewhere in the body, we cannot be surprised to meet similar effects in the treatment of this class of cases.

Next are to be considered the cases with round shoulders, faulty posture and lateral curvature. It might be of interest to report briefly the development which the treatment of these cases has had in our clinic during the last six years. When I took charge of the department it had been the custom to treat these patients almost solely with Zander apparatus. Very soon I added to this form of treatment special exercises, which were directed by me and given by my assistant. Since the number of patients steadily increased, an extra class was formed under a teacher trained in orthopedic corrective gymnastics. This class has now a very large frequency. One of the Boston Normal Schools for physical education furnishes us with volunteer assistants. The idea of the treatment is the individual training and education. Zander apparatus are in use only in addition to the individual exercise. A systematic record as to the frequency of visits, weight, height and the kinds of exercises used, and in the most severe cases, stereoscopic photographs taken after the manner described by Osgood and myself form a useful material for scientific observation. The exercises are all given with the patients' back exposed, thus allowing a good control of their various movements and postures.

FOOT CASES

Of the 265 foot cases at least 95 per cent. belong to the type of weak pronated feet; in about 20 per cent. a distinct peroneal spasm was present. Not counted in this rubric are the traumatic flat feet following fractures or sprains, or those foot troubles which are caused by infectious arthritis, or the paralytic deformities of the foot. If all those cases were included the total number would be at least twice as large. As to the indication of exercise treatment in the typical flat foot, I cannot share that enthusiasm which is shown by some authors. I do not believe that exercise treatment is ever able to cure a flat foot, but it has its definite place as an educative factor. It should be carried out as individual training in a similar way as in the treatment of lateral curvature. The patient should learn how to use his feet properly. If you accomplish so much, you can materially compensate and assist the usual orthopedic treatment.

Pain is not always a contra-indication for exercise treatment. We have had a number of patients with painful feet who for some reason had no other treatment besides and were relieved of their pain by massage and exercise while the strength and balance of their feet was at the same time improved. Occasionally we have tested the comparative strength of the adductors and abductors with Osgood's apparatus and have found a definite steady gain in favor of the adductors.

In peroneal spasm massage and exercise alone is able to relieve the condition, but I prefer to add strappings or casts and later plates to the exercise treatment.

NERVE CASES

For a long time physical therapy has been the faithful servant of neurology, and countless are the indications for its various branches. There is no need of discussing the preference of the one over the other, whether massage is better than electricity in a case of paralysis; all have their fields and their limits. To begin with neurosis, there is hardly any field in medicine in which physical therapy can celebrate such great triumphs in the one case and can be so disappointing in the other, though the indications may seem to be just the same. It is better to make a careful prognosis and not to use too many kinds of treatment at once in order to be able to change from one form to another when it seems wise. I begin, as a rule, with general massage to which I add exercise with or without apparatus, hydrotherapeutic applications, high frequency, static electricity, etc.

General massage has given us excellent results in cases of severe hysteric convulsions. Two of those cases had been under observation at the hospital for several weeks without showing any improvement. Soon after massage was started a distinct relief could be noticed and the patients were discharged clinically cured within two or three weeks. Exercises on Zander apparatus have not proved so efficient in this particular class of cases, but they are to be recommended in the depressive forms of psychoneurosis. The effect will be still increased if a strong personal influence can be added to the simply mechanical effect of the exercise. In private cases of that type we always welcome the personal assistance of the physician who sent in such a patient. As to a general indication I would like to say that the anemic cases should be handled with particular precautions.

PARALYTIC CONDITIONS

I have already called attention[1] to the various indications of the exercise treatment of paralysis. I have said that we should consider the effect of the treatment on: (1) the primarily affected neurons; (2) those neurons which are in a functional connection with the former, and those which furnish possibilities of substitution for the destroyed parts; (3) the musculature; (4) the joints and the bones; (5) the internal organs and general health, and (6) the mind of the patient.

In many of the paralytic cases apparatus are of great help in addition to manual massage and exercise. Particularly in the one-sided lesions, as hemiplegia, the use of the bilateral exercise apparatus for active and passive movements and especially those for promotive exercises is of a very definite value. To obtain

1. Bucholz, C. H.: Exercise Treatment of Paralysis, Am. Jour. Orthop. Surg., May, 1912.

the desired effect, however, it is necessary to control the patient carefully while he is doing this exercise.

A few words need be said in regard to the prognosis of infantile paralysis. The longer we have had a chance to observe patients the more have we become impressed with the possibilities of improvement in cases of long duration. Many of these patients had not noticed any improvement during years before they started systematic exercise treatment, and it has been sometimes surprising to see how much unused power was stored in muscle groups which at the first glance seemed to be extensively paralyzed. With such experiences we have felt a great deal more optimistic in encouraging the patient to undergo a treatment which certainly will require a good deal of patience and persistency.

Exercise treatment on the one side and operative or orthopedic mechanical treatment on the other should not be considered as excluding each other, as I see it not rarely done in practice. To cite a case recently seen of a girl aged 10 who was operated on in another hospital for spastic paraplegia: So far as I could find out Stoffel's operation had been done on the obturator nerves. As her mother said, there had been a distinct improvement during the first few months after the operation, but the child was left to herself without any attempts of after-treatment, and she is worse now than before, probably also with the prognosis made worse. I thoroughly agree with men like Biesalski, Foerster, Lovett and others that, unless such a patient, after either a simple tenotomy or Foerster's or Stoffel's operation, can enjoy a careful after-treatment in the way of educative individual exercise given with the full understanding of the situation, the operation should better be omitted.

Of other nerve lesions not grouped under neurosis and paralysis, we have had to treat spasmodic torticollis, paralysis agitans, multiple sclerosis, and once in a while a case of tabes. In a few cases we have given Frenkel's treatment for locomotor ataxia, but have never had a chance to carry it through a sufficiently long period. The value of Zander exercise in this class of cases is from our experience not very great.

INTERNAL CASES

Last of all I come to speak of the internal medical cases. The statistics presented in the table show a very small percentage of medical cases, compared with surgical, orthopedic and nerve cases, a percentage which is in a striking contrast to German institutions of the same kind. It is very much to be regretted that our medical men do not make a wider use of massage and exercise in the treatment of their cases, although publications of authorities in physical therapeutics as well as our own experiences have been very encouraging. Without going into details of a theoretical discussion, I should like to call your attention to the most important indications.

In cardiac cases exercise is of value in that stage when compensation has been reestablished. The stout persons are better subjects for exercise treatment than the slender anemic ones, and indeed, in the first group of cases we have seen some very suggestive results. One patient of middle age with a severe myocarditis and adipositas recovered during three months of faithful treatment by exercise and diet to his full power and strength, while he lost at the same time 35 pounds in weight. Frequently we combine the exercise treatment with carbon dioxid baths, thus making a combination which is known under the name of Nauheim treatment. The greatest difficulty in prescribing exercise treatment is the exact measure. We know that the effect of massage and exercise on the blood-pressure and on the pulse rate differs within wide limits according to the localization and amount of massage and according to the speed, time and amount of exercise. It was the desire to obtain an exact measurement and dosage that led Zander in planning and constructing his apparatus, and we believe that for cardiac cases the exercise treatment with Zander apparatus or with apparatus of a similar construction is superior to any other form of exercise treatment. Instruction in the use of the apparatus and a certain amount of control and supervision are necessary. In every medical case we have the pulse recorded before and after treatment and, if indicated, once or twice between.

Occasionally we take the blood-pressure before and after treatment, an examination which is done as a rule before and after the Nauheim bath.

Among the affections of the respiratory system the chronic bronchitis, the chronic adhesive pleuritis, and the late postoperative stages of empyema are especially suitable for exercise treatment. We have had some of those patients recover in a very satisfactory way. In one-sided pleuritic lesions asymmetrical exercises play a prominent rôle. In bronchial asthma and emphysema the exercises favoring expiration have proved to be of a decided value.

Of abdominal affections, chronic constipation has long since found particular attention from the point of view of physical therapy. Massage, gymnastics and hydrotherapy have been equally well recommended and all have a very definite value. But I believe that in a condition like this we should not depend on one or the other form of physical treatment without paying sufficient attention to the whole mode of life, the diet, the habits, etc. We must consider that in many of these cases the trouble is perhaps not so much local as constitutional and that an improvement is often far from a real cure, that relapses are apt to follow, unless radical changes in the whole life are made. But keeping these factors in mind, massage and exercise may become of greatest help. A number of Zander apparatus are particularly constructed for abdominal massage. I do not depend on this form of massage, which is in my opinion very much inferior to an intelligent manual kneading of the abdomen. But aside from this, Zander apparatus are very useful in the treatment of chronic constipation. It is necessary to keep up the treatment for a considerable length of time, if possible, to make it a kind of habit. This is particularly true for cases of chronic constipation, connected with adipositas and poor circulation of the internal organs, patients who are sitting most of the time, and do not have enough exercise. In German Zander institutions I have seen many elderly men of that type who came for exercise three times a week the whole year round.

CONCLUSION

I am at the end. It has been my purpose to show you the many and various ways in which a medicomechanical department can serve a large general hospital. It is not enough to have just a number of apparatus running, but the whole mechanism of massage and exercise treatment must be set to work; the treatment must be conducted not as a routine, but with the full under-

standing of physiologic and pathologic laws. Finally, and this is the most important point, such a department must have the intelligent and wilful support of the whole hospital and all physicians must feel that it is not an institution for the worst type of cases, but that it can show good results only when the indications for which the patients are sent are wise and the previous treatment has been the best.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BIERRING AND BUCHOLZ

DR. A. B. HIRSH, Philadelphia: We send patients to European specialists who use physical remedies, find that the former return much benefited, often cured, and then, uninfluenced by this evidence, still proceed with our old methods of strict drug therapy. On the other hand, certain features of physical treatment have hitherto been resorted to by those without scientific training, or who, if they had any technical knowledge, used modes of exploitation that aroused the antagonism of ethical practitioners. At least four large Philadelphia hospitals have modern hydrotherapic plants, those in charge being properly taught; one of these has a special building for hydrotherapeusis. Some private institutions, also, have introduced this and other newer modalities, all largely due to the wise propaganda of Simon Baruch. One can agree with Dr. Bucholz that, too often, patients are sent us for electrotherapic measures by medical men, who, unfortunately, are not informed on this and kindred measures. For instance, a patient was referred for obesity with the recommendation that vibrassage be applied over the abdomen, when, instead, oscillation and the static wave current were plainly indicated. Another case was that of a badly sprained ankle with much organized inflammatory deposit for which again vibration was insisted on. In these cases only failure could result, the mistaken methods asked for naturally getting the blame. When Dr. William B. Morton in the early eighties came back from Charcot's clinic in Paris where he had seen, through application of a static wheel of the simpler type, the value of even that small machine in nervous disease of plainly organic type, the outcome of his thinking was the modern American high-frequency static apparatus. By means of this a group of physicians over the country, scientific, ethical, are now treating patients referred to them by confrères with results practically unattainable by other methods. Why not apply this plan in each hospital rapidly to awaken the medical public to its possibilities? Some time ago I was asked whether I would care to create such a department in a large hospital in Philadelphia and as many assistants were offered as might be required. My answer was that, until those young graduates could be properly trained in the physical laboratory, the responsibility of treating the variety of cases met there would be too great, because blame for the inevitable mistakes and failures must finally fall on the chief. One must have accurate knowledge of the physics of electricity before apparatus of this high voltage can be correctly applied. When the undergraduate schools realize this fact, more bright students will go into these departments of hospitals and develop their opportunities. We must realize that there is no special field in medicine that must not have added to its armamentarium some phases of the more recent changes in physical treatment. In a few years we shall see the scientific basis of this important part of physical therapy generally recognized.

DR. C. HERMANN BUCHOLZ, Boston: There is a danger in special institutions of physical therapeutics. We have this danger in Germany as well as here, but we must use the help of the man who is more trained in his special line of work. The danger of such special institutions lies in the fact that the man in charge often has cases sent to him with the wrong indication but treats them nevertheless. In our Massachusetts hospital we accept private cases and sometimes they are not properly diagnosed. In a case of chronic urethritis nothing had been done to find the focus. There was a most important indication overlooked in that case. I believe that someone who calls himself a specialist in physical therapy treated that case nevertheless. Meyer of Dresden, one of the greatest German authorities on this subject, says there should not among physicians be a specialist in that line; there should only be a specialty as to the teaching. I thoroughly agree with that. Another point is the training of young physicians in this subject. It is surprising how difficult that is. In our orthopedic department, where about fifteen or twenty physicians are working, there are a lot of young men, who, I am sure, would have the time, but when asked what they would do they could not tell. I tell them they ought to be ashamed to call themselves orthopedic doctors and not know anything about this treatment.

COUNTY HEALTH ORGANIZATION IN THE UNITED STATES*

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NEW YORK

County health organization in the United States is especially significant in relation to the problems of rural sanitation. The campaigns of the last three decades have resulted in the establishment of active and fairly efficient offices of health in the cities. The concentration of people into the cities and the larger financial resources of these communities have made such service absolutely necessary and possible. In the country, on the other hand, the need for efficient health work is apparently not so imminent, funds are not as available, and as a result, this phase of community work has been slightly developed. With few exceptions, there is very little health control in the rural sections of the United States. It is the purpose of this paper to suggest a system of county health organization which, it is believed, will help to coordinate the several health functions of the state and to lay firmer foundations for the control of rural sanitation.

COMPARATIVE DECLINE IN URBAN AND RURAL MORTALITY (IN REGISTRATION STATES AS CONSTITUTED IN 1900) FROM ALL CAUSES

	Death Rates per 1,000 of Population						Decline in Death Rate '12 from '00	
	1900	1905	1910	1912	Av'ge '01-'05	Av'ge '05-'09	Actual	Pct.
Registration states ..	17.2	15.9	15.6	14.6	15.9	15.5	2.6	15.1
Rural part of registration states	15.2	14.4	14.7	13.9	14.1	14.2	1.3	8.6
Cities in registration states	18.9	17.1	16.2	14.9	17.4	16.4	4.0	21.2

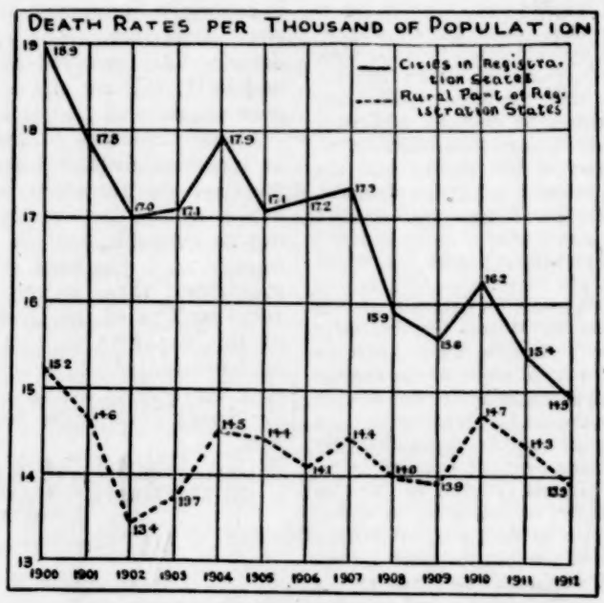
A few statistics will help to a clearer understanding of our subject. The death rate has materially declined. In 1900, it was 17.2 per thousand living in the registration states and in 1912, the rate for the same states was only 14.6, a reduction of 2.6 per thousand, or 15.1 per cent. This decline in mortality, however, was much more pronounced in the cities, where the rate fell 21.2 per cent. in the twelve years under discussion, as against a decline of only 8.6 per cent. in the country districts. These figures (given in the table and chart) do not portray an accidental condition but are descriptive of a pronounced tendency in American mortality in the urban and rural sections of the country.

These death rates, to be sure, do not contain any allowance for the differences in age and sex composition of the population in the rural and urban districts. But the importance of this fact must not be overempha-

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

sized, for when the rates are standardized, the changes will be found to be slight and will scarcely affect the comparative rates of decline. There are other and more important elements of population composition than age and sex that should be considered in this connection. The country districts are the homes of the native stock of America, while the cities receive annually hordes of emigrants from Europe, whose mortality is and has been for years much higher than that of our American stock. In like manner, the colored race with its high mortality rate is almost twice as largely represented in the cities of the registration states as in the rural sections. If, therefore, a complete standardization were made of the death-rates presented in the chart we should find that the small advantage still in favor of the rural area in 1912 would be still further reduced if not entirely obliterated.

The explanation of the conditions we have just observed in the death rates of the city and the country lies largely, I think, in the differences in the efficiency of their health services. Yet it is in the rural section of the country that more than one half of the people of the United States still live. In 1910, 53.7 per cent. of our population were located in centers with populations under 2,500. In spite of the growth of our cities, America is still, and by necessity must long remain, largely rural in character. It is to the country side, therefore, that we must turn for many years for our most profitable life conservation work. No greater opportunity awaits the American Medical Association and other bodies interested in improving health conditions than to concentrate their energies to this section of the country and to accomplish, if only in a limited manner, what has been done in the American cities.



A comparison of urban and rural mortality (in registration states as constituted in 1900) from all causes.

The key to the solution of the problem of rural hygiene lies in the development of efficient county health organizations in the United States. In most states, the chief unit of local government is the county. There are 2,953 counties in the United States. The typical county is one of about 600 square miles in area with a population of about 20,000 so that every point of it is readily accessible from the county seat. Five-sixths of these counties are rural in character; fully 10 per cent. have no incorporated places and about half contain no towns with as many as 2,500 people. The American county, however, has not as yet been aroused to the fact that it has distinct health functions to perform and that it is the only governmental unit that can properly and efficiently perform such functions. The county health officer should be the most important single factor in conserving American public health, but is practically the weakest link in our entire health system.

To obtain a more intimate view of county health organization in the United States, a questionnaire was sent by the Statistical Bureau of the Metropolitan Life Insurance Company to the executive health officers of all the states. We inquired into the provisions of the state health laws; into the organization of the departments; whether there were any county health officers and whether they were full-time officials; how these men were compensated; the amount of their compensation; and to whom they were responsible. Finally, we inquired into the need for full-time county health officers in the several states.

From our replies it was at once evident that we were concerned with a vital question. The answers were usually complete, clear and to the point and indicated that the subject of our inquiry was in many states the chief concern of the health authorities. The following is a brief summary of our replies:

Health administration is organized on the county plan in thirty-one states out of the forty-one that replied. Yet only five had arranged for full-time county health officers in any of their counties. These were Oregon and Washington, which have one full-time county health officer each; Colorado and Florida, which have two each, and North Carolina which has eleven. In the other states, county health officers are part-time officials, if in existence at all.

In most states the compensation of the county health officers is determined by the local county commissioners or supervisors. In Louisiana, health officers are paid by the police jury of the parish and in Missouri by the county court. The county health officers of Florida are the only ones reported to be on the payroll of the State Board of Health. From all replies, however, we could infer that these health workers received entirely inadequate compensation. In many cases $100 a year was the total salary paid. In one state, fifty-six out of one hundred health officers received less than $200 annually, and this state has recently made considerable progress in its provision for county health service.

The county health officers of more than one-third of the states are responsible to local authorities only. Training in public health and sanitation is not required as a prerequisite for office. There is little, if any, provision for laboratory work. Tenure of office is insecure and the machinery is political rather than scientific.

The one encouraging note in our replies was the almost unanimous demand for full-time county health officers. In this connection the health executive of one of our Eastern states expresses the opinions of almost all of our correspondents when he says: "Yes. We feel the need for full-time county health service every day — all day."

We may, therefore, conclude from these answers to our several questions that full-time county health officers are an absolute necessity in most of our states; that very few such officers exist; that they are insufficiently paid; that responsibility to the centralized authority is lacking, and that county health work is only too often intimately connected with local politics. The present system of county health administration in the United States is inefficient and not conducive to the public welfare. The health officer of a large Western state aptly struck off the whole situation when he said: "The present system is not efficient and never can be."

What then is the solution to the problem presented by county health administration in the United States? It must be obvious that no system will be equally applicable to all the states. A plan that is practicable in New York may very well prove ill adapted because too expensive for a number of our Western or Southern states. Local conditions, both geographical and economic, will largely determine the details of organization. It is agreed, however, that certain fundamental considerations apply equally to all the states which have extensive rural populations, the local control of which is on the county plan. I propose to review briefly some of these requirements.

1. The county health organization of a state must be an integral part of the state health administration and be responsible to it. Public health protection is primarily a state function. The county health officer and the county board, whenever there is one, should, therefore, hold themselves in readiness to enforce orders from the state department. They should, moreover, be subject to removal by the state department for cause. The state, on its part, however, must recognize this dependence of the local organization through state subsidies to help cover the necessary expenditures for county health work.

2. The county health officer must be a full-time official. He must be one whose sole interest is in the community, to the exclusion of private interest, be it his own or that of private individuals or groups. We all know too well how often the part-time health officer who has a private practice to maintain must choose between the performance of public duty and the loss of his practice. This situation should not arise. He should never find it necessary to compete with those whom it is his duty to supervise.

3. The county health officer should be trained in the science of sanitation and public health. Most practicing physicians are not well enough equipped to administer a progressive health office. The protection of the public health, as now conceived, is a science with its own data and formulas. The larger medical schools, such as those at Harvard and at the University of Michigan, for example, have organized special postgraduate courses leading to the degree of Doctor in Public Health. It will be a great day in American public health affairs when medical officers will, as a class, qualify by study in such postgraduate courses.

4. The tenure of office of the health officer should be coextensive with his efficient service. The successful health officer is made, not born. With a proper background of training, every year of added experience makes him a more useful servant of the state. The health officer should, therefore, be assured of a continuous tenure of office. He should in no way be a pawn in the political game. A period of six to eight years has been suggested as a sufficient term. Health officers who have made good should then be considered for reappointment, although the state may reserve the right to dismiss in shorter time those who are incompetent or neglectful of their duties.

In view of these requirements, it should hardly be necessary to point out that county health officers must be reasonably compensated for their services. Surely, if full time is required, the compensation must be sufficient to attract and to keep good men in the service without inflicting hardships on them or their families. It is folly to set high standards and to make them impossible of attainment because of inadequate compensation or uncertainty of tenure. Salaries must be adequate to attract able men and to maintain them in a state of comfort consistent with their important duties.

Permit me to point out more definitely the character of the return that awaits the states on their investment in full-time county health officers. In spite of all our preconceived ideas as to the healthfulness of the country, the rural sections suffer severely from the ravages of tuberculosis. Such typically rural states as Kentucky and North Carolina (using these as examples) suffer a death-rate from tuberculosis higher than that for the registration states taken as a whole, and higher than for the registration cities. It would be the first duty of a full-time health officer to address himself to the tuberculosis problem of his rural communities.

The typhoid problem is equally urgent. In 1911 the death rate from this disease was 22.2 per hundred thousand in the rural section as against 18.6 in the cities of the registration states. These figures in themselves clearly indicate the many sanitary dangers incident to life in the country. Typhoid fever is always, to the health engineer, an unerring signal directing him toward polluted water supplies, infected food products and unsupervised typhoid carriers. These are a constant menace to the entire state through their effect on milk and other food supplies. All of these sources of typhoid infection, including the disposal of dangerous waste products, lend themselves to the concerted efforts of modern sanitary science. Indeed, no disease has shown such a ready response to control as this preventable filth disease. The full-time health officer, supported enthusiastically by his community, would in the course of his first administration, earn many times his cost in reducing sickness and death from this cause alone.

The full-time health officer would of course participate in other lines of health work. His influence would soon become evident in reduced rates of sickness and death for the other preventable diseases. In no one respect, however, would the services of the full-time officer be more constructive and remunerative to the community than his active participation in child hygiene. In the larger cities throughout the country, this phase of health administration is now permanently established. In the country, on the other hand, this work has not received any serious attention. Children are not so well housed or so well fed in the country as in the city, and school buildings are so poorly constructed that the children are often exposed to conditions of weather and infection which bring about disease. It would be the function of the full-time county health officer to work in cooperation with the school authorities of his community and to see that each child in his jurisdiction is examined for

physical defects, at least once a year. If there were no better excuse than the need for some local authority to carry on intelligent and modern work in child hygiene, the states would be justified in appointing full-time county health officers for this purpose.

I need hardly point out to this audience the multitude of ways in which a well-trained and full-time county health officer would serve the state. I need only refer, in addition, to his influence on the vital statistics of his county. While no attempt should be made to burden him with the duties of local registration, his very presence, especially when fortified with an efficient laboratory, would serve to bring together most valuable records of the incidence of the communicable diseases, as well as to improve the registration of births and deaths.

In closing, may I suggest that the committee of your section which has been appointed to study this problem cooperate with the committee of the American Public Health Association with a view to formulating a model bill on the subject of county health administration? This task should not be a difficult one at this time. A number of states, including Kentucky, Maryland, Georgia and Kansas, have either passed laws for county health service or are actively engaged in studying the question. Other states, judging from the character of the answers to our questionnaire, are intensely interested. It should be possible, through conference and study, to determine what a county health bill should contain, and the endorsement of such a measure by this body at a subsequent meeting should be most helpful in placing it on the statute books of a number of states. I can conceive of no more promising field of work for the American Medical Association and especially for the Section on Preventive Medicine and Public Health.

ABSTRACT OF DISCUSSION

DR. WM. M. PERKINS, New Orleans: With the major argument of Dr. Dublin's paper I agree most heartily. The necessity for more definite organization is apparent. We are fighting the health campaign very much as an untrained mob would fight. That more definitely trained and equipped health-officials are needed is not disputed; nor that there is a necessity for permanent health-officials who thus would have some encouragement to undertake this special work. A health-official cannot be, as a rule, a practitioner at the same time. The health-officer is forced to come into such relations with the rest of the medical profession of the state that whenever political changes remove him he is put in a very bad position with regard to resuming practice. Therefore, men everywhere are hampered in their health-work by the necessity of making a living when the powers that be remove them. There is no more apparent root of evil in the health administration of the present than the constant political changes of health-officers and their domination by politics, and the insufficient guaranty of reward for faithful, persistent and trained effort. With regard to the organization of a proper health army, it has two aspects. One would be to enlarge the powers, duties and responsibilities of the county health-officer as far as possible; then the state health-officer could, to the limit of the state's powers, take up those things which the county health-officer was not empowered to handle, and could leave to the national health-service the matters beyond his own jurisdiction. I am strongly in favor of enlarging the present bureau of public health into a full set of furniture, making it a department, and giving the national health-service as many powers, duties and responsibilities as may be required. The state health-officer then would carry the work as far as he was able, and the local health-officials would be left as little as was necessary. Instead of putting the burden on the lower officials and building up, I think it should be put on the higher officials and built down. I doubt whether the wording of the phrase "full-time county health-officer" is exactly correct. "Full-time health-officer," by all means; but probably it would work out better if the scheme were adopted to a district rather than the county, as Dr. Dublin suggests. In Louisiana we recently tried the plan of suggesting a movement to redistrict the state, cutting out the forty-odd parish or county health-officers, and putting in a small body of full-time district health-officers. The very element of politics and the ambition that men have to hold positions of county health-officers—to which they give little time, little training, and from which they accomplish, many times, little result,—rendered these positions so attractive, and of such honor and glory, that the incumbents fought vigorously not to lose them.

DR. W. H. SANDERS, Montgomery, Ala.: The question of securing adequate compensation to command the entire time of health-officers for the counties is being agitated in all of our states, and the outlook for the early future is growing brighter and brighter.

For eight or ten years, in my state, we have been working to this end. All we need to accomplish our object is to convince the people of the value of such an officer. Eight or ten years ago we secured a law laying down a minimum below which the authorities of a county could not go in fixing the salary of the county health-officer; but we put no limit above. They have had the right for all these years, and enjoy it now, of providing a salary adequate to command the entire time of a health-officer for the county; and we hope, in the near future, to see a number of the counties in my state availing themselves of their privilege, one county having already done so. The only obstacle is the lack of education of the people as to the need of such an officer and what he may do for them. I am glad to say that we are not confronted or surrounded by any of the difficulties mentioned by Dr. Perkins. We in Alabama, fortunately, are absolutely divorced from politics in our public-health administration. The election of health officers is vested in the organized profession; the doctors, in their organized capacity, name every health-officer in Alabama, from the state health-officer down to a health-officer for the smallest municipality. Our people approve this feature of our system, and we have never had any difficulty in maintaining it. With us it is simply a question of the education of the people as to the need of full-time county health-officers.

DR. W. S. RANKIN, Raleigh, N. C.: Dr. Dublin called attention to the fact that our state had more full-time health-officers than any other state that he had replies from. We have eleven whole-time county health-officers in North Carolina. There are 100 counties in the state. We could have had, if we had pushed our campaign along quantitative rather than qualitative lines, twenty or thirty counties. I believe what I say with regard to the counties of North Carolina would apply to the counties throughout the South. There is comparatively little difficulty in persuading a county to employ a whole-time man and to appropriate from $2,500 to $3,500 for the salary and expenses of such a health-officer, requiring him to own an automobile. Of course, a whole-time man with an automobile is worth two without one. To get whole-time health-officers in the counties is easy, and I will give our methods to anybody that wants them. After the officer is obtained, the troublesome thing is to get him to do the right kind of work. Dr. Dublin recommends that the state shall have power to require the whole-time officer to perform certain duties. That is about the only way that this system of county health-work will amount to anything. My first idea was, after the whole-time men were elected, to have them take three or four days to confer concerning their four or five definite fundamental duties; then for them to adopt some system of work embodying these duties. The report should be such that, when published by the state board of health, it would be comparative. I derived my idea from the work of the Rockefeller Commission in the South. Their men are all doing the same kind of work, making the same kind of report and using similar report blanks; at the end of

each week the results are published in such a tabulation as to make a comparative showing for each man. Instead of statutory power to compel these men to do certain things, we simply wanted to use that powerful law-enforcing power in American life—the power of publicity—to make them do their duty. If we could have gotten them to adopt a uniform standard of work and a uniform monthly report, and then published the work of each man, each month, in the health bulletin distributed throughout the state, and in the newspapers, we would have all the power that we need.

When the whole-time men came together, however, they decided that, inasmuch as some of them were inexperienced in health-work and the whole thing was experimental, they had better not establish any uniform plan to begin with, but rather should spend six or eight or twelve months in the field and find what work was needed, then later, perhaps, adopt a uniform standard of work.

DR. J. W. TRASK, Washington, D. C.: I think both Dr. Dublin's paper and its discussion show distinct progress in the evolution of health administration in this country. It is especially interesting, in my opinion, as showing the approach of the second step in health organization. I believe it is logical to assume that the state, being the larger unit of population and the larger political jurisdiction, will develop an efficient health department before the counties do. I take it that Dr. Dublin presupposes full-time state health-officers. Unfortunately, that is not so throughout all the country; but I do not believe that the development of the county organization should be delayed on that account. The position of state health-officer is not only one that requires an able man, but requires all his time. I do not believe that it is compatible with proper state health administration that the state health-officer should be devoting his attention to other things and his official work constitute a side line. Dr. Dublin's logic is sound, and, assuming that the necessity of full-time state health-officers has been established, it is time to strengthen health administration in the next smaller political subdivision of territory. It does not necessarily mean a county. I think that the county, however, having already a political organization, will in most instances be found the most suitable and convenient. The progress of health organization is undergoing a natural evolution. It was first appreciated that the state needed all the time of its health-officer. It is now apparent that the county also needs a full-time health-officer. In time further needs for full-time health-officials will undoubtedly be found in territorial subdivisions smaller than counties where the population is sufficiently great.

DR. S. A. KNOPF, New York: We have heard a good deal of the duties of the health-officers, but nothing of their rights. It seems to me that any health-officer without police power is but a feeble power in his community. I had occasion recently to examine some country schools, and, to my amazement, I found that the hygiene in those schools is sometimes many times worse than in cities. In many communities I have found that the health-officer has no control over the tuberculous patients who, because of ignorance or indifference, infect not only the members of their own families but their close neighbors and friends. If the health-officer of any community is not empowered to remove such dangerous patients to a place of safety, I mean where they will not be allowed to spread their disease, I cannot see the utility of the office in relation to tuberculosis. Unless the health-officer can order an unsanitary school to be made sanitary, he is but a weak factor in his community. I highly approve of all Dr. Dublin's suggestions. I hope those in power will propose bills and help in the enactment of laws whereby the health-officer of any community, small or large, shall be given police power to enable him to enforce the sanitary regulations whereby the whole community is to benefit.

DR. A. T. MCCORMACK, Bowling Green, Ky.: I want to express my appreciation of Dr. Dublin's excellent work. I think nothing went further in showing the members of our recent general assembly the wisdom of legislation creating full-time health-officers than the publication which Dr. Dublin distributed in Kentucky. The value of such essays distributed to the people has been greatly emphasized in our state, and I am glad to express the gratitude Kentucky feels to the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease for the opportunities it has given to the people of Kentucky to see actual demonstrations of what a full-time health-officer can do. The health campaigns which have been conducted in Kentucky in connection with this commission, this dispensary work, with a trained sanitary inspector in charge, with expert microscopists, with the trained workers in the warfare against tuberculosis conducting campaigns of from three weeks' to three months' duration in many counties, carrying the lessons of better health and longer life into the rural homes and country stores and schools and churches, are in this way best enabling the people themselves to realize what would be possible if each county could have a man devoting his entire time and energy to this work, assisted and supported, as he would be, by the organized medical profession and an educated public opinion. There was not an intelligent or thinking member of our recent legislature from a section in which these dispensaries had been held who was not only in favor of the creation of a full-time health-officer, but was more in favor of this legislation than any other matter before the general assembly. In Kentucky more than 200,000 men, women and children have been examined for intestinal parasites, and nearly half of them have been found to harbor hookworms or some other variety. If the Rockefeller Sanitary Commission had accomplished nothing else, if not one of those infected had been treated (and practically all of them were treated), the change of sentiment brought about by the demonstration to our people of the accurate sanitary methods of modern medicine, their increased confidence in their family physicians, their increased desire for better and more practical education in preventive medicine, would have justified the expenditure of all the money and energy which has been put into the work.

L. I. DUBLIN, PH.D., New York: Dr. Rankin's experience should prove most valuable to every state health-officer. It seems to me like a hopeless task to begin with the idea of local autonomy, although there is always a great temptation to do that. As Dr. Rankin has pointed out, there is the strong possibility that a group of county health-officers will combine for selfish purposes and defy the state department to compel them to do the right thing under the law. Unless they are appointed subject to the approval of the state department and can be removed from office by the state department, the administration of the county health service is very likely to become political and of little value. I therefore hope most sincerely that the committee appointed to report a bill for full-time county health-service will have in mind a system in which the state is the central authority, the several county officers being at all times responsible to the state and subject to its control. A bill which will have the approval of your organization and that of other national organizations like the American Public Health Association will have great weight with the state legislatures and is very likely to be enacted into law.

The Need of a Knowledge of Anatomy.—A disease must always have a relation to a healthy action, or healthy structure of parts, for it is only a deviation from them; so that a knowledge of disease would appear to rest on a knowledge of the body in its healthy state. It is in this point of view that anatomy and physiology become so very important, as being most likely to afford the means of relieving the body when suffering under disease. If anatomy, then, be of so much use in physic surgery, it ought to be earnestly cultivated by those who really wish to know their profession, and to become respectable in it. This is not a trifling matter. Justice and humanity require every exertion where the lives of our fellow-creatures are concerned. There are many professions where negligence or inattention may be reckoned a folly; but in medicine it is a crime. There is nothing that renders a person more fit for the discovery of new diseases, than a knowledge of anatomy.—Matthew Baillie.

A REVIEW OF CURRENT HOSPITAL TOPICS *

L. B. BALDWIN, M.D.
MINNEAPOLIS

After considering various topics on which to address you it appeared to me that the interests of the Section on Hospitals would be best served by an effort to emphasize further the importance of certain matters affecting the conduct of hospitals which are of special interest to the hospital administrator, and worthy of the consideration of the medical profession generally, and with which you are already more or less familiar.

The object in thus bringing them to your attention is to stimulate this Section to interest itself further in them as a body, to the end that it may exercise the influence for greater hospital efficiency of which it is potentially possessed, and which I believe to be its greatest function.

If the Section on Hospitals is fully to justify its existence it must assist, so far as possible, in promoting the aims of the other component parts of the parent organization. In return it may expect of them a fair consideration of and cooperation in the problems peculiar to itself.

While some of the matters to which I shall refer are not of recent origin, it is only during the last few years that their importance has come to be so generally recognized as to result in active efforts to secure their realization. These efforts have been inaugurated in part through the initiative of individuals who have been directly concerned in hospital administration, and partly as a result of certain demands arising from without the domain of hospital management.

Most prominent among the latter are the demands of medical education for larger and more efficient hospital facilities for the purposes of instruction in the clinical branches of medicine. These demands have been met in different places in various ways; but in no instance without involving hospital organization and standardization. These, I believe, are the most important subjects concerning hospitals of mutual interest to the different sections of the American Medical Association to-day. They are interdependent, and the ideal of hospital efficiency for which we are aiming cannot be realized without giving them the careful consideration which their importance indicates.

It is not my purpose to discuss the relative merits of different types of organization, or to suggest that the subjects of hospital organization and standardization should be approached from the point of view of medical education alone, but rather to urge, since they are of such great importance to hospitals, that they be considered and acted on in a broad way.

It must be admitted that the relationship between medical education and hospitals is such that the one cannot develop higher ideals and standards without the assistance and cooperation of the other. Hence, the problems of medical education become, to a great extent, the joint problems of the hospital administrator and those directly concerned in medical education.

Therefore, the best types of organization for the different classes of hospitals and the principles and methods to be employed in the general standardization of hospitals can best be determined through the cooperation of those representing the different interests involved. For this reason it would seem just and desirable that the Section on Hospitals be represented on the Council of Medical Education, and I would recommend that action be taken at this session to secure such representation.

A study of different hospital organizations which have recently been effected demonstrates that there are differences of opinion as to what type of hospital organization best serves the interests of medical education, but there is no disagreement on the proposition that, generally speaking, organization can be improved on.

Justification for the present existence and further extension and development of hospital organization of a type which brings the public wards, at least of the larger hospitals, in closer affiliation with medical schools is found in the experience of those hospitals in which such organizations have been in effect. The fact that the hospital so organized is benefited by such close relationship has been amply demonstrated. Just why the idea that the admission of medical students to the wards of hospitals for the purpose of receiving clinical instruction under proper supervision is inimical to the welfare and proper care of patients should have obtained so long in this country is not clear, especially in view of the fact that intimate connection between medical schools and hospitals has existed for centuries in England for precisely that purpose.

It may be said that, so far as medical education is concerned, the ideal hospital organization is that suggested by Abraham Flexner in his report on medical education in the United States and Canada. In this connection he says:

> The patient's welfare is ever the first consideration; we shall see that it is promoted, not prejudiced, by the right kind of teaching. The superintendent must be intelligent and sympathetic; the faculty must be the staff, solely and alone, year in and year out. There will be one head to each department—a chief—with such aides as the size of the service, the degree of differentiation feasible, the number of students, suggest.
>
> The professor of medicine in the school is the physician in chief to the hospital; the professor of surgery is surgeon in chief, the professor of pathology is hospital pathologist.

That the difficulties which may be, and usually are, met in attempting to apply an organization of such general character to large public hospitals are not wholly insurmountable is evidenced by the type of organizations planned for the new municipal hospitals of Cincinnati and Louisville.

The municipally supported or privately endowed hospital which, given the opportunity to affiliate through its organization with a medical school of recognized standing, does not avail itself of the privilege, is not fully discharging its obligations to the community it serves.

The value of one thing in connection with hospital organization deserves special emphasis. The larger hospitals at least should each include, as a part of the staff organization, a committee, the chief function of which should be to promote professional and administrative efficiency. This committee should be made up of a staff member from each hospital service, or division, and the superintendent or his representative. The membership thereof should be as small as practicable. The suggestion for, as well as a reference to the importance and value of. such a committee was

* Chairman's address, read before the Section on Hospitals at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

included in the address of Dr. F. A. Washburn, president of the American Hospital Association, last August. This matter is also urged on us by the Committee on the Standardization of Hospitals of the Clinical Congress of Surgeons of North American in connection with another matter which will be referred to presently.

Concerning the general standardization and classification of hospitals, progress has been made. The questions involved have been ably presented and discussed at various times by many, including the secretary of this Section, who has been actively engaged with others in promoting plans for its accomplishment, and to whom much credit for the advance is due. The action already taken in this direction by the Section on Hospitals was approved by the adoption of a resolution presented at the last meeting of the American Hospital Association by Dr. Hurd, providing for the appointment of a committee to consist of three of its members to act with a similar committee of this Section and cooperate with it in promoting the measure.

Any standardization which is to become effective and acceptable must of necessity be based primarily on a classification of hospitals and the character of the service which each renders to the community it serves. To adopt methods of standardization which overlook the opportunities to assist the smaller, worthy hospitals to effect still higher standards would be unfortunate. On the other hand, the principles and methods employed must be sufficiently comprehensive to put the so-called hospitals which permit or condone objectionable or criminal practice in a properly designated class by themselves. That such hospitals do exist is a recognized fact which must not be overlooked in the determination of principles and methods of standardization.

That some system of periodic, competent inspection of hospitals is desirable is generally admitted by hospital administrators. How best to obtain this is a matter with which the Section on Hospitals should concern itself. Some system of inspection must precede any standardization undertaken, and be continued permanently thereafter if the desired results are to be obtained and perpetuated.

The Council on Medical Education has wisely considered the whole subject of hospital standardization in a general way from the point of view of medical education and is now preparing for publication a provisional list of hospitals acceptable from the standpoint of furnishing satisfactory training for interns. This provisional list will shortly be published and will amount to a temporary standardization of hospitals in that direction. In this connection the Council has arranged for the appointment of advisory committees in different states to assist in this work, and the provisional list will later be revised on the basis of reports submitted to the council by these several committees. What action, if any, will be taken by the Council with reference to the further and more general standardization of hospitals remains to be seen. Obviously it is not within the province of the Council on Education to concern itself to any great extent in the direction of those hospitals in which clinical instruction cannot, for one reason or another, be undertaken.

The program of this meeting of the Section on Hospitals bears testimony that there are other things requiring attention in the direction of standardization.

Who of us has not noted the diversity of surgical technic exhibited by surgeons equally competent in diagnostic ability, surgical judgment and operative skill? Why should two or more equally competent and reliable surgeons demand different types of surgical apparatus, equipment or instruments to accomplish the same result in a given case? If such a diversity of technic were essential to the welfare of the patient no question could or would be raised concerning it. That it is not essential is amply shown by the statistics of certain hospitals wherein differences of surgical technic obtain.

Since autostandardization of the surgeon is being attempted, the least the hospital administrator can do is to afford every facility possible to make its accomplishment both sure and rapid. The measures which have been institutel in this direction, notably the creation and organization of the American College of Surgeons, are based on a recognition of the fact that there is still ample opportunity for improvement, notwithstanding the marvelous progress made by surgery in recent times. These measures conscientiously followed out will ultimately result in the further elevation of the surgeon, and incidentally the hospitals, in the confidence of the public.

A criticism of the statistics usually embodied in the reports of general hospitals has recently been made from at least two sources. That ultimate results of the care and treatment of the patients covered in most reports are not indicated, is plain. There is a demand, on the part of the profession, for a revision of the form of these reports based on a follow-up system. The report of the Committee on Standardization of Hospitals of the Clinical Congress of Surgeons of North America covering this matter was adopted at the meeting of the congress last year and the report has been generally circulated. Statisticians are also free in their criticisms of the form of most hospital reports, and the criticisms from both sources are just. We, as hospital administrators, would do well to act on the suggestions for improvement in this direction already made and put them into effect as promptly as possible.

Details of hospital construction are never without interest to the hospital administrator. Our attention is called to the necessity of ascertaining certain scientific facts on which intelligently to base standards for the ventilation of hospitals. This matter will be brought to your attention in detail during this session and the Section requested to lend its influence by supporting some measure looking to an investigation and report on the subject by a properly constituted body.

One cannot consider the subject of hospital construction in this country without being impressed by the vast amounts of money which have been and are now being expended in the erection of buildings for hospital purposes. There is a well-founded belief in the minds of some that beauty of architecture has been achieved in many instances at the expense of thoroughly practical utility. In formulating plans for a hospital it should be remembered that beauty is only skin deep, and that the prime object of the hospital is the efficient, economical care of patients coming to it. The increasing demands on the part of the public for greater free hospital facilities, together with the difficulties frequently experienced in securing the necessary funds to meet these demands, causes one to wonder, if, in the construction of the large modern hospital of today, we always realize the largest practical and efficient facilities possible for the expenditure involved. The hospital administrator engaged in planning buildings should duly consider the opinions and desires of the staff, but he will frequently be shocked by the unrea-

sonableness thereof, both as to space desired and equipment asked for. It is then his duty and province to evaluate their demands and bring them into proper relation with the whole on the basis of modern medical knowledge and principles and methods of administration.

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THE TONSILS AS A HABITAT OF ORAL ENDAMEBAS

POSSIBILITY OF SYSTEMIC COMPLICATIONS OF ORAL ENDAMEBIASIS *

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In connection with work recently carried on by Smith and Barrett in the pathologic laboratories of the University of Pennsylvania[1] indicating that the parasitic amebas of the mouth hold an important relation in the etiology of pyorrhea alveolaris or Riggs' disease, and that by the use of emetin (alkaloid) as an amebicide these organisms may be destroyed and the pyorrheal lesions cured, we have sought to determine whether these protozoa may not find their way also into the tonsils and there perhaps be of importance in determining or in maintaining certain of the inflammatory lesions of these structures, at least with or without associated systemic complications. To the present time only the first of these propositions can be said to be proved, that is, that these parasites actually at times involve the tonsils. The conditions of the tonsils of persons in whom they have been found infested, and the behavior of several positive cases with systemic complications after the administration of emetin, however, are decidedly suggestive and encouraging to continued investigation now in hand.

In the work of Smith and Barrett the endamebas encountered in pyorrhea pockets have almost invariably been of the species *Endamoeba buccalis* Prowazek, 1904 (probably identical with *Endamoeba gingivalis* Gros, 1849 and *Endamoeba buccalis* Steinberg, 1869); two of their cases to date being regarded by them as *Endamoeba kartulisi* Döflein, 1901. They are uncertain, but regard it not improbable that of the instances held primarily as *Endamoeba buccalis*, certain ones may represent a third, as yet unclassified species. These organisms have been long known, but have been hitherto uniformly held to be non-pathogenic parasites of the mouth, on the supposition that they do not penetrate the tissues, are merely surface habitants, and are found in normal as well as in pyorrheic mouths. Barrett in his report of their work records the uniform discovery of endamebas in the pus of pyorrhea pockets in forty-six patients, without exception; offers as controls seven mouths free (after careful dental examination) from pyorrhea, and free also of amebas; and records to the date of his report before the Pennsylvania Dental Society (July 1, 1914) thirteen cases of Riggs' disease treated with emetin either with complete cure or with marked progress toward recovery. Since then all of these patients have fully recovered and numerous additional cases have been collected showing the presence of endamebas in pyorrhea pockets and the effectiveness of emetin in their destruction and in the cure of the suppuration.

In the latter part of July, 1914, before the American Dental Society of Europe, in session at the time in Paris, Dr. Angelo Chiavero,[2] a dentist of Rome, in a paper devoted to the morphologic and systematic study of *Endamoeba buccalis*, records his invariable discovery of the parasites in twenty-two cases of alveolar pyorrhea, its frequent presence in the soft deposits on sound teeth not kept in good hygienic condition, its absence from carious dental cavities in active process of decay and its absence from hard tartar. In his conclusions, however, he states his belief that these organisms are of no pathogenic influence, but that he regards them, from the fact that they feed on bacteria, as adjuvants to autodisinfection of the mouth.

Still more recently Bass and Johns[3] of New Orleans have announced their discovery of these endamebas in eighty-five out of eighty-seven cases diagnosed as Riggs' disease which they have had the opportunity of examining, and declare the curative efficiency of emetin administered hypodermatically. The results which have been obtained from the use of emetin, whether employed locally or administered hypodermatically, constitute an appealing argument for the actual pathogenic importance of these protozoa, an argument short only of ideal proof by successful inoculation of pure cultures[4] and surely of equal significance to the old "therapeutic tests" with mercury and iodids for syphilis and with quinin for malaria.

When one realizes the readiness with which along with the purulent discharge these parasites may emerge from the pyorrhea pockets, and the favorable circumstances for their active and passive distribution over the surface of the oral mucous membrane and of the teeth, there is little reason for wonder and no strong force of argument in the fact that they are found on these surfaces. There is as little reason to hold the frequency of their occurrence as human parasites as an objection to their pathogenicity if one remembers that it is commonly held by the dental profession that pyorrhea alveolaris is, with the exception of dental caries, the most frequent disease which affects humanity and that with careful examination by competent dentists an overwhelming proportion of all persons applying for all sorts of dental affections are found to have in obvious or in less degree some suppurative peridental lesions. Even if trivial, these may be the habitat of amebas and the source of those found on the free surfaces. It would be as reasonable to contend that because the endamebas of dysentery are found in the dejecta they do not also penetrate the tissue of the colonic wall. The pyorrhea pockets may very properly be held the analogs of the ulcerous excavations found in the

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1. For preliminary report, see Barrett: Dental Cosmos, August, 1914.

2. Chiavero, Angelo: Abstr., Dental Cosmos, September, 1914.

3. Bass and Johns: New Orleans Med. and Surg. Jour., 1914, lxvii, 456.

4. Smith and Barrett (personal communication) have succeeded in obtaining indifferent and always bacterially contaminated cultures on fresh egg albumin, but have not succeeded in isolating the amebas so as to make inoculation experiments practicable.

mucosa and submucosa of the colon in amebic dysentery; and, while it is equally true of both locations that the endamebas which are actually at a given moment on the surface of the mucous membranes are not at that particular time causing disease, each species in its place by penetrating into the tissue produces a suppurating excavation, a "pocket" or an ulcer. The precise rôle in each instance of associated bacteria cannot be asserted; but there is reason to suspect their conjoined importance and, too, an important symbiotic relation between the protozoa and the bacteria.

Believing that from their proximity to pyorrhea pockets and their favoring anatomic structure the tonsils might be invaded and form another habitat for these endamebas, we made a number of examinations of tonsils to determine their occurrence in these organs. In examining the tonsils for parasitic amebas, because of the difficulty occasioned by want of technical skill in obtaining from these organs a proper amount of material for examination, the search was restricted at first to freshly excised tonsils, the examination being made directly in the operating room as quickly as the tonsils were removed. All the tonsils thus examined were removed by Dr. Ralph Butler of Philadelphia, to whom we wish to express our feelings of indebtedness. The excised tonsil was squeezed to discharge the more superficial contents of the crypts; and after this had been removed, by firmer pressure the deeper contents of the crypts and perhaps some of the interstitial juices were forced to the surface and examined on a warm slide, diffused in a small drop of warmed normal saline solution. Seventeen cases were thus examined, five of the number showing motile amebas of the type of *Endamoeba buccalis* Prowazek, and regarded by us as this organism. In the material obtained from a sixth case an ameboid type of cell, with multiple long slender almost filiform pseudopodia composed of clear material, and with a granular body roughly measuring 20 micromillimeters in diameter, non-vacuolated and with a small and clearly visible body regarded as the nucleus, was found. It was not unlike *Amoeba gracilis* (a form once encountered by one of us in a subphrenic abscess). No motility could be determined, however, and while it is believed to have been an ameba, uncertainty is acknowledged and the case is not included in the list of positive tonsillar infestations. All of these seventeen cases were instances of some type of chronic tonsillitis, usually with tonsillar hypertrophy. The tonsils of the five persons in whom these organisms were demonstrated were all large, with pouting crypts; and were removed from young persons presenting the usual local and general symptoms of chronic tonsillitis with irregularly occurring exacerbations. The cases were not followed up beyond the point of determination of the parasitism, since, at the time, the establishment of this as a fact was the prime purpose in hand.

During the same time attempts were made, but in no instance with success, to obtain material from the tonsils *in situ* by scraping out the contents of enlarged crypts with a suitable pointed instrument. Later, however, with a fine pointed glass pipet to which was attached a strong suction bulb it was found comparatively easy to withdraw a small amount of semifluid material from the depths of the crypts, sufficient for microscopic examination. The tonsils are practically insensitive to the operation, and the point of the pipet may be introduced without discomfort into the crypts to such a depth that when suction is applied numerous red blood-cells are withdrawn in the viscid fluid which enters the lumen of the tube, indicating that more than mere cryptal contents are obtained. This is placed, with or without dilution, in warmed normal saline solution, on a warmed slide, covered, and examined without further preparation for the moving amebas. Permanent preparations may of course be made by fixing the film, preferably in warm Schaudinn solution, and staining with Giemsa's stain or with iron hematoxylin; but for diagnostic purposes the recognition of the moving parasites is advantageous and satisfying. We have thus far not found the organisms in this tonsillar material in numbers comparable to those ordinarily noted in the material from pyorrhea pockets, but believe that with better methods of withdrawal of material they will be found more frequently and in larger numbers.

Riggs' disease has for years been suspected of primary relationship to various systemic disturbances, including particularly certain chronic or recurrent arthritic affections, and possibly, too, some of the anemias of obscure origin and degenerative lesions of various parenchymatous organs; and even greater suspicion, amounting almost to certainty, has attached to tonsillar affections in relation to such systemic complications. Following these ideas, which are essentially those of Hunter[5] and others, the possibility of more generalized influences must necessarily occur, the effects of either the endamebiasis or of the associated bacteria, or both. Direct extension of the inflammatory processes, or lesions due to metastasis by lymphatic or hemic convection, or due to the effects of swallowed or absorbed toxic products are, logically, at least to be thought of.

In several instances in the series of cases treated for pyorrhea by Dr. Barrett, there has been noted, after the cure of the pyorrhea, the disappearance of symptoms of gastric and intestinal disorders. Similar experience has been related to us by several dentists following emetin medication; and while perhaps in a few cases this may be due to the happy effect of a coincidence of pyorrhea and amebic dysentery (as in a case communicated by Dr. F. C. Narr of Philadelphia to us), this explanation can be accepted only in exceptional instances. It would rather suggest that the cure of the oral lesions has diminished the bacterial and other poisons which previously had been swallowed and had been causative of some grade of gastritis.

During the latter part of the summer in the wards of Dr. B. F. Stahl in the Philadelphia General Hospital six cases of chronic arthritis were examined, in four of which endamebas were discovered in material thus obtained from the tonsils. These were all adults.

CASE 1.—A white male patient had been recently admitted with a history of arthritis of ten months' duration, in one knee, an ankle and both shoulders. The tonsils were not especially enlarged, but showed prominent crypts with the tissue immediately surrounding them turgid, boggy and red, giving the crypts a pouting appearance. There was a history of recurrent, mild, apparently causeless sore throat. Under treatment with salicylates the conditions in the tonsils and joints cleared fairly promptly; and two examinations thereafter failed to show the presence of endamebas, which at first were readily encountered along with numerous spirochetes and bacteria.

5. Hunter: Brit. Med. Jour., Nov. 19, 1904.

Case 2.—The patient, a white man, was admitted with a subacute arthritis of supposed Neisserian origin, affecting the right ankle. The tonsils were of the same type as in the preceding case, and material removed by pipettage showed occasional amebas. The case cleared up symptomatically on ordinary treatment in about four days, succeeding which period three examinations on different days failed to show the persistence of any endamebas.

Cases 3 and 4.—Both patients were afflicted with chronic arthritis, but presented no appreciable tonsillar lesions. Material taken by pipettage from the retrotonsillar space in front of the faucial pillars revealed no endamebas in either. (We regret that tonsillar puncture was not performed for obtaining material, as we believe that the proper material, suggested by the blood-cells always obtained in the pipet, is really not merely of cryptal but also of interstitial source.)

Case 5.—A white woman, with typical rheumatoid arthritis, with the small joints of the hands and feet, the joints of the jaw, elbows, ankles and knees and of the spinal column affected, gave a history of recurrent sore throat. Her tonsils were fibroid; the tonsillar tissue on the right side just anterior to the posterior pillar red and beefy in appearance. Amebas have been found repeatedly from material from the latter situation.

Case 6.—A white man with chronic arthritis (involving both knees, ankles, wrists and elbows, and the small joints of the hands and feet) had cryptal enlargement in both tonsils, with a deep red boggy appearance of the pericryptal tissue of the tonsils, this more marked on the left than on the right side. Amebas were readily found in the material withdrawn from the tonsils.[6] Originally this man had an attack of acute articular rheumatism eighteen or twenty years ago, with persistence of subacute symptoms for six months afterward. In the interim, while suffering from occasional twinges of pain in various joints (never disabling) he was free from acute symptoms until four months prior to his present admission to the hospital; and at irregular periods had a recurrent sore throat usually without appreciable cause. In the spring of the current year he developed a septic thrombophlebitis of the right internal saphenous vein for which he was treated in the Philadelphia Hospital, being kept in bed almost continuously for six or eight weeks. He was thereafter discharged from the hospital; but until his readmission about eight weeks later he was never free from pains in his joints, although able to move about without much difficulty, but with many of his joints showing permanent enlargement. He was readmitted to the hospital in a state of intoxication and was assigned to the "drunk ward," where he soon developed an acute exacerbation with arthritic involvement as stated above, and with moderate swelling and redness evident about many of the involved joints. For a week he was actively treated with sodium salicylate and bromid of sodium, but without appreciable effect on the arthritic condition. At this time endamebas were found in the tonsils (and too in pyorrhea pockets); and from August 6 the patient was given thrice daily ⅙ grain of emetin hydrochlorid (by mistake by the mouth, although ordered hypodermatically). August 9 he was entirely free from pain in the joints and from the redness and swelling except in the knees. From the last date he was given ⅓ grain of emetin daily hypodermically, and on August 12 he was free from all acute arthritic symptoms, but with persisting enlargement of the joints. Thus improved he was discharged.

Case 7.—A somewhat similar case was communicated to us by Dr. Gibson Smith of the intern staff of the Murray Hospital of Butte, Mont. The subject, a white adult, a miner, had had subacute arthritic symptoms involving the joints of the neck, elbows, wrists, fingers, knees, ankles and toes for five or six months continuously, with irregular exacerbations through this period. He had had his upper teeth removed fifteen years before, presumably because of pyorrhea, and has had pyorrhea about the lower teeth at least ever since. Numerous motile endamebas were found by Dr. Smith in pus from the pyorrhea pockets. No examination of material from the tonsils was made, these organs appearing normal grossly. The pyorrhea was treated locally with emetin hydrochlorid, and in addition the drug was administered hypodermatically. Within four days the gingival suppuration had ceased and the amebas could no longer be found in scrapings from the pockets; the joint symptoms had subsided and the patient was able to return to his employment for which he had previously been incapacitated more or less of the time. No report has been received to indicate whether or not the improvement has continued.[7]

Two other cases, one referred through the kindness of Drs. Krumbhaar and Gerhard from the medical dispensary of the Pennsylvania Hospital, the other a patient in the medical ward of the University Hospital examined by permission of Dr. Stengel, have been found to have amebic oral infestation.

Case 8.—The first of these, A. A., a white woman, aged about 40 or 45, was regarded by the dispensary physicians as having chronic toxic arthritis, and had been referred to the throat dispensary of the hospital, where it was advised that removal of one of the tonsils be performed because of a diffuse interstitial tonsillitis. Endamebas were found in pyorrhea pockets about several of her teeth, and in the affected tonsil. Emetin treatment was suggested for trial; but difficulty in obtaining the drug for use in the dispensary postponed for several weeks its employment, and no report has thus far been afforded.

Case 9.—The second case, that of A. R., a white woman in Dr. Alfred Stengel's wards in the University Hospital, presented the usual features of long-standing arthritis deformans. She was found to have a marked case of pyorrhea with endamebas in the pockets; but no parasites were found in the tonsils. Emetin was to have been used in the case, but on trial caused an unpleasant nausea and it was at once suspended.

In the original series of cases reported by Dr. Barrett as treated by local administration of emetin hydrochlorid for pyorrhea there was a young white woman with a marked but unstudied anemia, poorly nourished and in a depressed condition of general health. Since her recovery from the pyorrhea, a matter of about three months, she has acquired an excellent color, has added 15 pounds in weight and is now in excellent general condition. This case suggested the possibility that some of the obscure anemias, especially those suspected of being of hemolytic origin, might find their explanation in oral endamebiasis. Thus far we have had the opportunity of examining the mouths in three cases regarded as pernicious anemia and in all three have found *Endamoeba buccalis* in the gums and in one of the three also in the tonsils. All three of these patients have been receiving treatment with other remedies, and it is quite impossible to know whether the emetin applied locally and hypodermatically to two of them has had any influence or not. One of the two, improving under sodium cacodylate and iron, has improved continuously and apparently especially after local treatment of his pyorrhea and hypodermic administration of emetin hydrochlorid. A less marked but distinct temporary improvement was noted in the second, although at present the blood-picture has receded; here, too, the emetin was only incidental to treatment with sodium cacodylate and iron citrate.

6. The rapid hemolysis of a freshly englobed red blood-cell in one of these endamebas is noted in this case, and is of interest; disappearing without fragmentation by solution in the course of five minutes. The same phenomenon has been seen in endamebas from pyorrhea pockets by Smith and Barrett.

7. Reported Oct. 15, 1914, that after recurrence of arthritis with well-marked redness and swelling on September 16, an intramuscular injection of 2 grains of emetin hydrochlorid was promptly followed by disappearance of all arthritis symptoms, without any return to date of report.

We freely acknowledge that the scant data here presented can in no wise be interpreted as proving that oral endamebiasis is surely a factor of generalized intoxication in the production of arthritis or anemia. We believe, however, that the positive finding of the parasitism in connection with these conditions and the favorable features mentioned as met after administration of emetin in these few isolated cases are sufficiently suggestive to warrant further trial. In study of the possible relation it would be illogical to suppose that the toxic states determining either the arthritides or the anemias must either entirely or always be due to the oral condition; at best, if there be a relation, that can be true only in individual cases. Efforts to determine a relationship are sure to fail frequently, and failures are bound to be recorded (even if we are correct in our suspicions) until sufficient knowledge and experience are had to select properly, directly or by elimination, the appropriate cases. It is illogical to even suspect that, granted the existence in an individual of oral endamebiasis, there must necessarily be systemic complications, or that such complications must be of uniform character. Much must depend on the local circumstances governing absorption, and much, too, must depend on the number and type of associated bacteria. Whatever other relation may obtain between the amebas and the accompanying vegetable micro-organisms, one may be certain that the amebas feed largely on the latter; and in this bacterial phagocytic action they doubtless set free from this and from that organism different endotoxins. Doubtless bacterial toxins thus originating play a more important part than do toxins from the amebas themselves, if there be amebic toxins; and the end-results of toxic absorption are sure therefore to vary, now manifesting as hemolysis, now as cellular degenerations or necroses of fixed tissues, now as inflammatory changes as of synovial or serous membranes.

CROTALIN IN EPILEPSY*

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On account of the wide publicity given through the lay press to the supposedly wonderful results to be obtained from the use of crotalin in the treatment of epilepsy, we feel that we owe it to the profession to present to it the results obtained from this treatment at the Epileptic Colony at the State Hospital at Dix Hill.

First, we wish to state that this treatment has been given under and by the direct advice of Dr. Thomas J. Mays, one of its chief advocates, and to say further that his instructions have been faithfully carried out.

The advocates state that the principle on which this treatment depends is the fact that crotalin decreases the coagulability of the blood, and they assert that the coagulability is increased in epilepsy. We wished to confirm or refute this and very readily did so by making use of a Boggs coagulometer, which was first carefully tested out on normal blood at a temperature of from 60 to 65 F., the temperature at which the abnormal blood was tested. The mean coagulation time for this particular instrument was 6 6/17 minutes. The mean coagulation time for the blood of nine epileptics who had received no crotalin was 12 7/9 minutes. The mean coagulation time for the blood of eleven epileptics who had received about forty doses of the remedy was 9 3/11 minutes, while the mean coagulation time of the blood of thirteen epileptics who had been given eighty or more doses was 7 4/13 minutes. These findings would indicate that the exact opposite to the assertions of the advocates is true, and this is further in accord with the well-known serologic principle that the injection of any foreign substance into the blood causes the formation of antibodies.

That this condition of the blood is exceedingly transitory seems probable, as in three patients who had taken no crotalin in three weeks (though they had previously received over one hundred doses) the mean coagulation time was 14 1/3 minutes.

In a more recent paper, Dr. Mays states that he uses crotalin on account of its pharmacologic effect, saying that its action is very similar to that of the cyanids. Let us hope that he is nearer right in this than in his former contention. We are afraid, however, that even this is not entirely true, as practically all of the patients assert that they get decided stimulation from the therapeutic dose of this drug, and the cyanids have never been accused of any such action.

CONVULSIONS DURING TIME OF OBSERVATION

Period	Dosage	Time	Number of Convulsions: Men	Women	Tot.	Gr. Tot.
Three months before treatment	No crotalin	January ...	215	135	350	
		February ..	241	190	431	
		March	280	214	494	1,275
First three months of treatment	10 minims twice a week	April	277	267	544	
		May	333	286	619	
		June	231	246	477	1,640
Second three months of treatment	10 minims once a week	July	263	282	545	
		August	209	289	498	
		September .	244	260	504	1,547
Third three months of treatment	5 minims once a week	October ...	253	235	488	
		November .	250	233	483	
		December .	275	247	522	1,493
Three months' treatment discontinued	.....	March	157	201	358	
		April	274	250	524	
		May	257	222	479	1,361

In poisonous doses it does cause convulsions—whether or not for the same reasons that the cyanids do—remains to be proved. He tells us that the homeopaths have been using snake-venom by mouth for many years for epilepsy and by inference we are led to suppose that he has been converted to "the hair of the dog is good for the bite" theory. In this dissertation he further attempts to explain the nature of epilepsy, with the usual result.

Differential blood counts in nineteen patients who had received from forty to one hundred doses showed a tendency to slight eosinophilia with a slight increase in mononuclears, with no apparent effect on the total number of leukocytes or on the red blood cells, nor did the hemoglobin seem to be affected. In two cases with abscesses the septic factor was present, as would be expected.

The drug is supplied in solution, 5 minims of which equals 1/100 grain, and the directions are to give it hypodermatically twice a week, beginning with 4 minims and increasing to 10. Later advices were to give no more than 5 minims. The hygienic and dietetic treatment was the same for these as for other patients.

To determine its effects on the number of convulsions, it was decided to record accurately every con-

* Read before the North Carolina Medical Society.

vulsion occurring during the three months preceding its use and to compare the number of these with the number occurring during the first, second and third periods of three months each while the treatment was being given, the doses being different in each of these periods, and further to compare this number with the number occurring during the three months after the treatment was stopped altogether.

The treatment was begun the last week in March, 1913, and forty-nine patients were treated. During January, February and March there were 1,275 convulsions. During April, May and June, the first period of treatment, when 10 minims were given twice weekly, there were 1,640 convulsions. During July, August and September, the second period of treatment, when 10 minims once weekly were given, there were 1,547 convulsions. During October, November and December, the third period of treatment, when 5 minims once weekly were used, there were 1,493 convulsions. The treatment was discontinued some time in February, 1914, and sterile water used in place of the venom so as to retain any psychologic effect there might be, and the number of convulsions during March, April and May was found to be 1,361. This would indicate that not only does the medicine not decrease the number of convulsions, but actually increases them and in direct proportion to the amount given.

As to the effect on the mental condition of the patient, there has been no more improvement in those taking crotalin than in those taking the usual treatment.

It is only fair to state that a large majority of the patients brought to the colony for treatment are in bad shape both mentally and physically, and that many of these improve markedly in these respects after they have had the usual treatment here, while quite a few have fewer convulsions, owing to the regular life, and careful hygienic and dietetic management, together with freedom from worry and irritation from the outside. This effect is obtained in spite of the fact that they get practically no bromids when compared with the amount they receive before admission.

As a result of our observation, it would appear therefore that:

1. The blood of epileptics is less coagulable than that of normal persons, and the coagulability is transiently increased by the use of crotalin.

2. The number of convulsions is increased by its use and in direct proportion to the amount used.

3. Its use seems to have no effect on the mental condition of the patient, all of which is absolutely contrary to the claims of the advocates of the treatment. Its use does, however, to a certain extent, satisfy the abnormal craving for medicine which all epileptics have.

Health as a Social Ideal.—The New Health, as a social ideal, signifies that in our day, because of our new knowledge, our new science of sanitation, our new conscience, our new spirit of brotherhood, our new democracy, our new social intimacy of understanding, we are coming to feel about the public health as our fathers have felt about religion, education, liberty and nationality. We are to feel that health is fundamental and inalienable, that it imposes sacred obligations, calls us to willing service, becomes the object of our constant concern, makes us ashamed of inefficiency, stupidity and graft, because they mean disease, raises us to a new level of brotherhood.—Edward T. Devine, *Journal of Outdoor Life*.

A COMPARISON OF THE WASSERMANN AND LUETIN REACTIONS IN 744 INDIVIDUALS

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The tests here recorded were performed at the U. S. Soldiers' Home at Washington D. C., in the course of an investigation to determine the prevalence of syphilis in that institution.

The inmates of the Soldiers' Home are all discharged soldiers who have served twenty or more years in the army, or who have been discharged for some disability incurred in the service. Practically all of the inmates, therefore, suffer from some disability or chronic disease, and the great majority are well along in years, 80 per cent. being between the ages of 50 and 80. There are a fair number of cases of locomotor ataxia, and a considerable number suffering from circulatory disturbances, liver diseases, etc. Under such circumstances it might reasonably be expected that a large proportion of these men would show evidences of having suffered from syphilis. This was, therefore, considered an exceptionally good opportunity to test the relative efficiency of the Wassermann reaction and the luetin test.

Both tests were accordingly performed on as many men at this institution as possible. No selection of cases was made, but all the men in each building were taken in order.

The luetin was furnished by Dr. Hideyo Noguchi of the Rockefeller Institute. The luetin was injected according to the prescribed technic, and three readings were made at weekly intervals thereafter. Double plus was used to indicate a very severe reaction; plus to indicate a strong reaction; plus minus to indicate a slight reaction. Only the double plus and plus reactions were considered to be diagnostic of syphilis.

The Wassermann reactions were performed by one of us at the Army Medical School following the technic described by Captain Craig, M. C.[1] A human heart cholesterin antigen, prepared according to the method of Walker and Swift,[2] was used.

This antigen has been criticized lately by several workers, notably by Thomas and Ivy,[3] who state that many false positives have been reported following the use of this antigen. As it is not within the scope of this paper to discuss the technic of the Wassermann reaction, it will be sufficient to state here our belief that when this antigen is used with a proper technic, it will give no more false positives than other antigens. This opinion is based on 4,588 reactions that have been performed up to date in cases in which the history and clinical symptoms were available as a check, and out of this number of cases, we have so far had only two cases in which a false positive (double plus) has been returned. These were both cases of diabetes. The plus reaction is never considered diagnostic except as corroborative evidence in the presence of a history or physical signs indicating syphilis. We may

1. Craig and Nichols: Studies of Syphilis, Bulletin 3, War Dept., Office of the Surgeon General, p. 72.
2. Walker and Swift: A Study of the Addition of Cholesterin to the Alcoholic Extracts of Tissues Used for Antigens in the Wassermann Reaction, Jour. Exper. Med., 1913, xviii, 75.
3. Thomas, B. A., and Ivy, R. H.: Use of Cholesterinized Antigens in the Wassermann Reaction, The Journal A. M. A., Jan. 31, 1914, p. 363.

add that possibly the reason Thomas and Ivy obtained so many false positives with the cholesterinized antigen was that they appear to have used it with only one unit of complement and amboceptor. Most workers have held that two units of complement and amboceptor should be used as a factor of safety. At any rate this was the system in which this antigen was used by Walker and Swift, and it is obviously unfair to the antigen to condemn it as giving false positives after cutting down the hemolytic system to half of that used by Walker and Swift. In our tests, the complement has always been accurately titrated and two units of both complement and amboceptor have been used.

The results of this examination are shown in Table 1.

TABLE 1.—RESULTS OF EXAMINATION

Reaction	++	+	±	—	Total
Wassermann	100	56	123	465	744
Per cent.	13.39	7.52	16.53	62.50	
Luetin	45	194	165	340	744
Per cent.	6.04	26.07	22.17	45.70	

Tables 2 and 3 bring out still more clearly the relation between the luetin and Wassermann tests.

TABLE 2.—COMPARISON OF WASSERMANN AND LUETIN TESTS

			Luetin			
Wassermann			++	+	±	—
100	++	=	8	27	21	44
56	+	=	6	16	13	21
123	±	=	8	26	29	60
465	—	=	23	125	102	215
744			45	194	165	340

TABLE 3.—COMPARISON OF LUETIN AND WASSERMANN TESTS

			Wassermann			
Luetin			++	+	±	—
45	++	=	8	6	8	23
194	+	=	27	16	26	125
165	±	=	21	13	29	102
340	—	=	44	21	60	215
744			100	56	123	465

From these tables it is evident that the Wassermann and luetin reactions do not give corresponding results. The plus reaction to the luetin test, as we read it, may undoubtedly be considered a positive reaction. The plus Wassermann, on the other hand, is very suspicious but not diagnostic unless confirmed by history or physical signs. But even if we count double plus and plus reactions as a positive indication of syphilis for both the Wassermann and luetin tests, and plus minus and negative reactions as negative, it is apparent that while by the Wassermann reaction, we have only 156 positive out of 744, or 20.82 per cent., by the luetin test we have 239 positives out of 744, or 32.11 per cent. The luetin test is, therefore, more delicate than the Wassermann as a routine test in the class of cases that we examined, or else it is giving a number of false positives. We are convinced that the former is the correct explanation from the accumulated experience of other observers as well as our own. We have performed the luetin test on a considerable number of persons in whom syphilis could be excluded and have never obtained a positive reaction. The great majority of the patients in this series who have a positive luetin reaction had some history or physical signs indicating syphilis.

It may further be seen that of 588 cases (465 — and 123 ±) negative by the Wassermann, 182, or 32.6 per cent., of the 588 cases were positive by the luetin test. While of the 505 cases (340 — and 165 ±) negative by the luetin test, 99, or 19.6 per cent., of the 505 cases were positive by the Wassermann. It is therefore clear, providing the results of both the luetin and Wassermann tests as we performed them are accurate and reliable, that these two tests complement each other to a certain extent. In other words, had we used the Wassermann reaction alone, and counted both double plus and plus reactions, we would have found 156 positive, or 20.8 per cent., of syphilis; if we had used the luetin reaction alone, we would have found 239 positive, or 32.1 per cent., of syphilis. But by using both tests, we find 338 positive (156 positive by Wassermann, 239 positive by luetin, minus 57 positive by both tests), or 45.4 per cent., of syphilis.

It is also interesting to note that there were only 57 cases, or 7.66 per cent., that were positive to both tests, while 406 cases, or 54.57 per cent., were negative by both tests, leaving 281 cases, or 37.76 per cent., that were positive by one test but negative by the other.

The latest estimation of the practical value of the luetin reaction by Noguchi[4] confirms the opinions previously expressed, that the Wassermann reaction is much more constant in primary and secondary cases, but that the luetin reaction gives a higher percentage of positives in tertiary, latent and treated cases. Our experience amply confirms the latter statement. Eighty per cent. of the men in this series were between 50 and 80 years of age, and when syphilis was present it was with rare exceptions in the tertiary or latent stages.

It is believed that the use of a cholesterinized antigen renders the Wassermann reaction more efficient, and that a number of undoubted syphilitics who give a negative reaction with other antigens will give a positive reaction with a cholesterinized antigen. But even if this be granted, it is apparent that in tertiary, latent and treated cases, the luetin test is considerably more efficient in detecting syphilis than the most efficient Wassermann reaction. A test of so much value would be of great assistance to the general practitioner, and it is to be hoped that some arrangement may be made whereby a supply of luetin may be made available for general use.

We wish to express our thanks to Dr. Noguchi for his courtesy in supplying us with an ample amount of luetin, and to Lieut.-Col. James D. Glennan, the surgeon at the Soldiers' Home, for the encouragement and cooperation which made this investigation possible.

4. Noguchi, Hideyo: Practical Application of the Luetin Test, New York Med. Jour., 1914, c, 349.

The Medical Schools in Belgium.—The University of Louvain was founded in 1426 and ranked only second to Paris during the middle ages, but it was abolished by the French in 1797. In 1835 it was revived as a Roman Catholic institution. The medical department at the opening of the current year had seventeen professors, including the neurologist, A. Van Genuchten, and two docents. The medical department of the University of Liége included fifteen professors and six docents. Familiar names on the list are the surgeon, von Winiwarter, Fraipont, Schiffers, Beco and Malvoz. The University of Brussels is the best equipped in Belgium, and among its twenty-five professors and thirty-one agrégés are the surgeon, Depage, who presided over the International Surgical Congress in New York last spring, and Bordet, whose research provided the basis for the Wassermann reaction, etc. The medical faculty of the University of Ghent numbers eighteen and includes Van Ermengem, sponsor of botulism.

THE DIAGNOSTIC VALUE OF THE SPHYGMOMANOMETER IN EXAMINATIONS FOR LIFE INSURANCE *

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Prior to 1907, little or no use was made of the sphygmomanometer except in clinical cases. Three years ago in a paper delivered before the Medical Directors Association, I said:

> No practitioner of medicine should be without a sphygmomanometer. He has in this instrument a most valuable aid in diagnosis. The sphygmomanometer is indispensable in life-insurance examinations, and the time is not far distant when all progressive life-insurance companies will require its use in all examinations of applicants for life insurance.

TABLE 1.—ACTUAL MORTALITY TO AUG. 1, 1913, AS COMPARED WITH THE EXPECTED, ACCORDING TO THE ACTUARIES' TABLE AND MEDICO-ACTUARIAL TABLE OF MORTALITY IN CERTAIN BLOOD-PRESSURE CASES *

Years	Number of Lives	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)	Expected Deaths (M.-A. Table)	Per Cent. (Actual to Expected)
1907	216	10	19.625	50.96	13.486	74.15
1908	651	31	53.760	57.66	36.386	85.20
1909	957	17	59.302	28.67	38.889	43.71
1910	837	27	39.639	68.11	25.205	107.12
Totals .	2,661	85	172.326	49.33	113.966	74.58

* Mortality of accepted risks with systolic blood-pressure of 140-149 mm. Hg with an average of 142.43 mm. Hg—all ages.

To-day this prediction is practically fulfilled, and no up-to-date practitioner is without this very valuable aid in diagnosis, much of which has been due to the requirements of life-insurance companies in insisting on their examiners using the sphygmomanometer in examinations for life insurance. I have received hundreds of letters thanking me for insisting on its use in examinations for the company and testifying to its very great value in private practice.

TABLE 2.—MORTALITY OF ACCEPTED RISKS WITH SYSTOLIC BLOOD-PRESSURE OF 150 MM. HG AND OVER: AVERAGE 152.58 MM. HG—ALL AGES

Years	Number of Lives	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)	Expected Deaths (M.-A. Table)	Per Cent. (Actual to Expected)
1907	87	8	8.154	98.11	5.726	139.71
1908	212	17	18.812	90.37	13.023	130.54
1909	161	4	12.173	32.86	8.357	47.86
1910	65	4	3.660	109.29	2.419	165.36
Totals .	525	33	42.799	77.10	29.525	111.77

The use of the sphygmomanometer demonstrates in many cases that a supposedly normal person may have an abnormally high blood-pressure and present no symptoms or pathologic changes discoverable by any of our present methods of diagnosis, thereby suggesting a careful study of the case before any symptoms of disease are discoverable, thus rendering the sphygmomanometer a valuable and indispensable aid in diagnosis. Clinicians for some time considered a blood-pressure of 180 mm. Hg as of little significance; now a pressure of 160 mm. is regarded as one that calls for further study of the case, while the statistics presented herewith show that a blood-pressure of 150 mm. Hg gives a higher mortality than an average risk accepted by conservative life-insurance companies, and this covering a period of only a comparatively few years. I am firmly of the opinion that a persistent blood-pressure of 15 mm. Hg above the average for the age of the applicant should at least excite suspicion and call for further careful and painstaking investigation.

*Read before the American Association of Medical Examiners at Atlantic City, June 22, 1914.

TABLE 3.—MORTALITY OF APPLICANTS REJECTED WITH AVERAGE SYSTOLIC BLOOD-PRESSURE OF 161.44 MM. HG—ALL AGES

Years	Number of Lives	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)	Expected Deaths (M.-A. Table)	Per Cent. (Actual to Expected)
1907	46	14	4.816	290.70	3.443	406.62
1908	118	18	10.817	166.40	7.565	237.94
1909	213	22	15.464	142.27	10.509	209.34
1910	221	12	13.250	90.57	8.973	133.73
1911	318	7	10.809	64.76	6.707	104.37
1912	668	9	10.295	87.42	5.589	161.03
1913	386	1	1.749	57.18	.904	110.62
Totals .	1,970	83	67.200	123.51	43.690	189.97

In the year 1906, in order to test the diagnostic value of the sphygmomanometer in examinations for life insurance, made use of the instrument in its examination of applicants for insurance at its home office. The results were such that in August, 1907, it was deemed advisable to require its use by our examiners in the field who possessed an instrument or could be induced to secure one. The result was that in a number of the larger cities we were enabled to secure its use in examinations for the company. By the first of the year 1912, 90 per cent. of the examiners of the company were using the instrument in their examination of applicants for insurance. At the present time there are very few examiners of the company who do not possess an instrument.

TABLE 4.—MORTALITY OF APPLICANTS REJECTED WITH HIGH BLOOD-PRESSURE (AVERAGE 164.77 MM. HG) AND ONE OR MORE OTHER IMPAIRMENTS

Number of Lives	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)	Expected Deaths (M.-A. Table)	Per Cent. (Actual to Expected)
888	43	32.422	132.63	21.409	200.85

The blood-pressure was required by the company (except in special cases) only at ages from 40 to 60 (the company does not insure persons whose insurable age is over 60). Since November, 1911, it has been required at all ages and irrespective of amount of insurance applied for.

Our company has rejected 405 applicants, up to June 1, 1914, under the age of 40, who had a persistent

blood-pressure of 15 mm. or more above the normal for their age, without any other impairment recorded on the blank, and 1,036 (ages 40 to 60), without any other impairment. In my opinion, the results fully demonstrate the value of the use of the sphygmomanometer in examinations for life insurance on applicants under the age of 40. Dr. Cabot[1] makes the statement that "slight increase of systolic blood-pressure is (fortunately for our diagnosis) rarely encountered. As a rule, if we find the blood-pressure high it is very high (160-250 mm. Hg) and not in the more dubious immediate regions (140-160 mm. Hg)." He undoubtedly refers to clinical cases only—persons who are ill and consult physicians for relief. They are not seeking life insurance. The class of cases encountered by the life-insurance examiner are those who have not as yet reached that stage. They suppose they are normal, believe they are in good health, and

TABLE 5.—IMPAIRMENTS RECORDED ON APPLICATIONS AT TIME OF MEDICAL EXAMINATION OF THE 888 CASES RECORDED IN TABLE 4

Arteriosclerosis Atheroma	Heart Murmur	Heart Hypertrophy	Albumin and Sugar	Albumin in Urine	Sugar in Urine	Albumin and Casts	Casts in Urine	Nervous Symptoms	Prostatic Disease	Miscellaneous	Total
109	216	53	15	259	37	21	12	30	16	120	888

are seeking life insurance for the protection of their families. We frequently encounter men who are running a very high blood-pressure who declare they are feeling perfectly well and who consider themselves normal in every respect.

By reference to Table 1, it will be seen that the company accepted 2,661 risks in the years 1907-1910, with

TABLE 6.—MORTALITY OF APPLICANTS REJECTED WITH HIGH BLOOD-PRESSURE ONLY (AVERAGE 159.90 MM. HG)

Number of Lives	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)	Expected Deaths (M.-A. Table)	Per Cent. (Actual to Expected)
1082	40	34.778	115.02	22.281	179.53

an average blood-pressure of 142.43 mm. Hg at ages 40 to 60, and that the mortality is about the same as the general average mortality of the company for the same period, while Table 2 shows 525 risks accepted in 1907-1910, with an average blood-pressure of 152.58 mm. Hg (an increase of practically 10 mm. Hg blood-pressure over the foregoing), showing a mortality of over 30 per cent. in excess of the general average mortality of the company.

Table 3 shows a mortality on 1,970 applicants rejected with an average blood-pressure of 161.44 mm. for the years 1907 to Aug. 1, 1913, with a mortality of 190 per cent. of the medico-actuarial table, which is considerably more than double the average mortality of the company. Table 6 is a record of 1,082 applicants rejected with no other impairment recorded on the blank at the time it was received at the home office. These had an average blood-pressure of 160 mm. Hg. All of these persons would have been granted insurance, with a mortality of more than double the mortality expected, had it not been for the high blood-pressure.

1. Cabot: Physical Diagnosis, Ed. 5, 1912.

TABLE 7.—IMPAIRMENTS SUBSEQUENTLY DISCOVERED OR DEVELOPED IN THE 1,082 CASES RECORDED IN TABLE 6

Arteriosclerosis Atheroma	Heart Murmur	Heart Hypertrophy	Albumin and Sugar	Albumin in Urine	Sugar in Urine	Albumin and Casts	Casts in Urine	Nervous Symptoms	Prostatic Disease	Miscellaneous	Total
14	29	6	6	136	8	91	38	8	1	18	355

Number of Lives	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)	Expected Deaths (M.-A. Table)	Per Cent. (Actual to Expected)
355	15	12.600	119.05	8.184	183.28

It should be stated that the company's average mortality is only 80 per cent. of the medico-actuarial table. The mortality in connection with the number of deaths which have occurred since August last, to date, in Tables 2 and 6, has not been computed, as it was found that it would not materially change the ratio. Five additional deaths have occurred in Table 2 and twelve additional in Table 6.

TABLE 8.—MORTALITY OF APPLICANTS REJECTED UNDER AGE 40—HIGH BLOOD-PRESSURE ONLY (AVERAGE 151.19 MM. HG)

Ages					Total	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)
Under 20	20 to 25	25 to 30	30 to 35	35 to 40				
6	43	56	52	84	241	2	2.108	94.88

We have received but little diagnostic value in our work from the low pressure. Occasionally a low blood-pressure with a marked tuberculous family record leads us to decline a risk. We are, however, tabulating the risks accepted with a pressure of 100 mm. or less. We seldom insure a risk with a reading below 85 mm. Hg.

TABLE 9.—IMPAIRMENTS SUBSEQUENTLY DISCOVERED OR DEVELOPED IN THE 241 CASES RECORDED IN TABLE 8

Arteriosclerosis Atheroma	Heart Murmur	Heart Hypertrophy	Albumin and Sugar	Albumin in Urine	Albumin and Casts	Casts in Urine	Miscellaneous	Total
1	6	1	1	36	12	5	1	63

The same may be said of the diastolic pressure. We record it, however, in our examinations at the home office and require it of most of our examiners in the larger cities. As to what diagnostic or prognostic value may be attached to it, the future will reveal when our data are tabulated.

The mortality on the rejected risks as shown in the tables is undoubtedly much lower than the exact figures would show, were it possible to secure a record of all deaths. When the risk is not insured in this or other companies, we must depend on the solicitor and medical examiner to notify the company of the death of those risks which we rejected with a high blood-pressure.

The blood-pressure should be taken with the person in a sitting posture, with the arm resting on a table

TABLE 10.—CAUSES OF DEATH IN RISKS ACCEPTED (TABLE 2) AND RISKS REJECTED (TABLE 3)

	Accepted*	Rejected†
Anemia, pernicious	..	1
Aneurysm, aorta	..	1
Angina pectoris	1	3
Apoplexy	4	18
Appendicitis	2	2
Arteriosclerosis	1	10
Cancer	2	3
Cerebrospinal meningitis	1	..
Cirrhosis of liver	..	2
Consumption	..	1
Diabetes	..	2
Duodenal ulcers	2	..
Gall-stones	3	2
Heart disease (organic)	4	16
La grippe	1	..
Locomotor ataxia	..	1
Nephritis	3	16
Paralysis	..	2
Peritonitis	..	1
Pneumonia	3	..
Prostatic hypertrophy	1	..
Railway accident	1	..
Rheumatism (acute)	2	..
Stokes-Adams disease	..	1
Suicide	2	1

* Average blood-pressure of those who died was 152.42 mm. Hg.
† Average blood-pressure of those who died was 172.93 mm. Hg.

or other convenient rest, which will relax the muscles, at the completion of the applicant's declaration, and before the physical examination is begun, and again after the physical examination is complete. At least two, or better, three readings should be made at each test, and the average of all recorded on the blank.

TABLE 11.—THE AVERAGE SYSTOLIC BLOOD-PRESSURE ACCEPTED RISKS, AGES 15-60*

Ages	Number	Mm. Hg of Pressure	Average Blood-Pressure
15-20	281	33,679	119.85
21-25	785	96,365	122.76
26-30	791	97,805	123.65
31-35	689	85,258	123.74
36-40	2,111	268,005	126.96
41-45	6,740	866,518	128.56
46-50	4,471	583,795	130.57
51-55	2,371	313,282	132.13
56-60	1,100	148,261	134.78
Totals	19,339	2,492,968	128.91

*Compiled from 15,014 records of this company and 4,325 records of the Mutual Benefit Life Insurance Company.

Many of our examiners furnish us with both the palpatory and auscultatory readings. A difference of about 6 mm. higher in the latter method will be shown.

A high blood-pressure is found in about 6.5 per cent. of all applicants declined for insurance by the company.

"The Partisan of Truth Alone."—I avow myself the partisan of truth alone; and I can indeed say that I have used all my endeavors, bestowed all my pains on an attempt to produce something that should be agreeable to the good, profitable to the learned and useful to letters.—William Harvey.

THE NEUROLOGIC EXAMINATION OF MENTAL CASES*

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At this moment when the light of rational medicine is beginning to penetrate into the darkest corners of psychiatry, when chemical and biologic laboratories are uniting to displace the new psychosexual philosophy, it is most timely to make a plea for the thorough physical examination of the mentally afflicted. To just the extent that one whiles away precious time in deciphering dreams and reveling in the free associations of interesting neurotics, does one fail to learn all that can be known of a patient's physical constitution. If we are to achieve therapeutic and diagnostic success, the physical investigation of the insane must receive at least as much attention as, for instance, the devotee of the new psychology gives to psychanalysis.

That even competent observers may occasionally fail to recognize true neurologic conditions has been conclusively shown by E. E. Southard, who analyzed sixty-one cases in which the diagnosis of general paresis was made, forty-one of which were considered clinically certain and agreed to by all of the staff members at the Danvers State Hospital, while six were cases that had been wrongly diagnosed, the essential histologic features of general paresis having been absent. In place of these he discovered the changes of meningomyelitis, subcortical encephalitis, tabes with non-paretic cerebral disease, arteriosclerotic brain disease with involvement of the cerebellum, and cerebellar sclerosis. Instances abound in the literature and the unpublished cases are even more numerous—in which competent men have missed the neurologic diagnosis in a supposedly mental case, because no importance was attached to what seemed to them insignificant neurologic symptoms. It appears that in those cases the mental picture had completely overshadowed the neurologic aspect.

Though it is possible for even the most skilled examiner to mistake a neurologic disease for a case of frank insanity, the mistaken diagnoses are usually made by those who neglect the neurologic examination entirely. Of prime importance is it, therefore, to keep in mind the necessity for these examinations in all forms of mental disease. Since a neurologic examination has become part of the routine examination of every new arrival to an institution for the insane, it may appear unnecessary to plead for one. But every one who has had the privilege of witnessing such institution examinations can testify to their incompleteness, and these are not infrequently the only examinations made of the patient during his entire stay at the hospital. Unfortunately, the record made at a patient's entrance is seldom again referred to for the purpose of making additional notations.

The important organic nervous diseases not infrequently mistaken for insanity are brain tumor, cerebral arteriosclerosis, syphilis and non-specific vascular brain disease. Of the so-called functional nervous disorders not rarely diagnosed as insanity in private practice may be mentioned drug addictions, postinfectious and post-traumatic deliriums, and the psychoneuroses.

An error most humiliating to the physician and fraught with possible harm to the patient is the mis-

* Read before the joint meeting of the Chicago Neurological Society and the Illinois State Hospital Society, Jan. 29, 1914.

taken diagnosis of insanity in a case of brain tumor. Even after a thorough examination one may overlook the mental symptoms of a case of brain tumor, but it is next to impossible to give a patient a neurologic examination and then to diagnose a case of brain tumor as one of insanity. Knapp of Boston, in his statistical review, "The Mental Symptoms of Cerebral Tumor," informs us that not infrequently patients who were considered only insane have died from brain tumor. "The mental syndrome during life was so pronounced," says he, "that neurologic symptoms had been overlooked, until the post-mortem examination revealed the presence of neoplasm." Of the 104 cases from the literature which he had collected, there were mental disturbances sufficiently marked to attract attention in seventy-nine, a trifle over 75 per cent. of the cases. Schuster of Berlin, from a similar study of 775 cases culled from various sources, found a condition of simple mental weakness, dulness, somnolency and dementia in 423 cases, while 352 cases presented some active symptoms of mental disorder, among which he mentions those of general paresis, chronic paranoia, melancholia, Korsakoff's psychosis, hallucinatory delirium, circular states, mental weakness with excitement, senile dementia, and a number of minor types of insanity. In these cases it was noted that mental symptoms were more prevalent in left-sided brain tumor and that the larger the growth, the more pronounced were the symptoms. Further, he believes that tumors situated in the corpus callosum and frontal lobes are capable of producing mental symptoms which have a close resemblance to simple dementia. Tumors presenting the syndrome of general paresis with or without the delusions of grandeur have also their probable localization in the frontal lobes. Though some authors dispute the view that the frontal lobes are the seat of the higher psychic functions, the majority still favor this view, while it is generally admitted that the frontal lobes are not the only psychic centers. Since Monakow has so plausibly explained many of the otherwise inexplicable somatic brain symptoms by the theory of diaschisis, we may reasonably assume that coordinate intellectual function is likewise conditioned by the harmonious cooperation of several widely separated centers in the brain, each of which is capable, when diseased, of throwing out of commission the entire mental machinery. Thus, it appears that the occipitotemporal region, the zone of language, and the corpus callosum constitute important contributory streams to the higher mental life which has its fountain head in the frontal lobe.

This simple enumeration of the variously localized brain tumors capable of simulating true insanity may suffice to impress one with the importance of making careful search for the well-known tumor syndrome in every case of supposed insanity.

To mistake Korsakoff's psychosis for general paresis or confusional insanity is easy; but to commit this error after an examination of the reflexes, sensation and motion, is almost unbelievable.

That vascular brain disease, before and after the insult, is capable of producing the most manifold symptoms, some of which mimic the well-known syndromes of the classical psychoses, is familiar to all. To take the blood pressure, examine the urine and inspect the retinal vessels is equivalent to avoiding some hard falls.

With the advent of salvarsan therapy the differentiation between the non-specific psychoses and those produced by brain syphilis has assumed practical importance. Thanks to the laboratory which has furnished us the "four reactions" and a gold-sol test, we are now in a better position to diagnose syphilitic nervous disease than formerly, but we must be ever mindful that the laboratory still is, and probably always will remain, the handmaid of the clinician.

In referring to the functional disorders which occasionally assume the mask of true insanity, we may state that the drug-addictions, including alcoholism, easily lead the rest. Mention must also be made of the post-infectious and posttraumatic deliriums as well as the psychoneuroses.

In a recent paper Alfred Gordon states that from his study of 171 cases he came to the conclusion that the chronic forms of opium and cocain poisoning resemble many forms of insanity. He finds that "some cases simulate melancholia, mania, manic-depressive insanity and even catatonia, though none of them give the typical pictures of these psychoses. Among the well-recognized symptoms of those drug-intoxications are hallucinations of sight and hearing. While the delusions of this type are mostly transient, fleeting and fragmentary in character, at certain periods of their evolution they may assume the form of systematized delusions, reinforced by hallucinatory images. Thus, some of them may present a picture closely allied to paranoia. A characteristic symptom is the gradually oncoming dementia which develops insidiously and increases with years, until a complete psychic decrepitude is established."

Though many of the insanities have alcoholic excess as an important contributing causative factor, there are several types of psychoses which appear to be produced entirely by chronic alcoholism. Because of their resemblance to other well-known forms of insanity, they are spoken of as alcoholic paranoia, pseudoparesis, etc. In most cases the careful search for somatic evidence, past or present, of the stigmata of chronic alcoholism will lead to a correct diagnosis, while the disregard of a physical and neurolgic examination often avenges itself by complete failure. As the ultimate prognosis of even moderately advanced alcoholic psychoses is infinitely better than for instance that of dementia praecox, paranoia or arteriosclerotic dementia, the timely recognition of the alcoholic character of a psychosis is an advantage of no mean value.

Most gratifying to the clinician are the cases of acute insanity following trauma or infection, provided a correct etiologic diagnosis has been made. Not a few of these patients can be treated at home. Much damage both to patient and physician has resulted from mistaking such curable psychoses for the incurable ones. Likewise many a case of psychasthenia, hysteria and even neurasthenia has been diagnosed as insanity, because of the examiner's predilection for short cuts.

In conclusion I may be permitted to repeat Charcot's statement that more mistakes are made by not examining than by not knowing.

Heredity.—An infection, an habitual intoxication of the parents, a maternal disease during pregnancy, can determine perversion of development, which though so slight and uniform as to be quite unobservable at birth, comes to the surface with the progress of years in the shape of unexpected failures of certain fundamental functions of intelligence, of eccentricity of character and of perversion.—Lugaro, Problems in Psychiatry.

BLINDNESS, CAUSED BY OPHTHALMIA NEONATORUM *

RICHARD J. TIVNEN, M.D.
CHICAGO

The part played by ophthalmia neonatorum in producing blindness is a sadly conspicuous and leading one. It enlists our sympathetic interest because its victims are, in the vast majority of instances, the "little ones," who are powerless to prevent its occurrence and powerless also to make known the early manifestations of a disease which is destroying their sight. In consequence of its ravages, the lives of these defenseless unfortunates are blighted irrevocably, and they are forever consigned to a future of unending darkness. No writer can be charged with unseemly reiteration, no medical tongue accused of boresome repetition, no matter how often or how insistently he dwells on this painful, humiliating truth, namely, that the vast majority of these little ones could have been spared their sad affliction if only the simplest elementary precautions had been observed at the proper time.

Statistics are numerous, indicating the frequency and the proportion of blindness caused by the disease. A study of these, collected by different observers, warrants the conclusion that one-eighth of blindness from all causes is due to this disease, and one-fourth of the blindness among children is attributable to the same cause.

A comparison of statistics from different sources is shown by Tables 1 to 6.

The "Special Reports on the Blind and the Deaf, 1900, Department of Commerce and Labor, Bureau of the United States Census," present the following statistics and comments:

Excluding congenital statistics and injuries, accidents and operations, there are 2,556 who lost sight after birth, but under 1 year of age, and in 644, or 25.2 per cent. of these cases, the cause of blindness was probably ophthalmia neonatorum, or "babies' sore eyes," since other diseases of the eye causing blindness under 1 year of age are extremely rare. The importance of these figures lies in the fact that

TABLE 1.—CENSUS RETURNS (ENGLAND AND WALES), 1901
(Harman: Preventable Blindness)

Sex†	1891	1901	Condition as to Marriage, 1901		The Blind: Ages Under 5	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65-75	75-85	85,over
♂	12,281	13,136	Single	5,583	280	373	590	611	573	949	747	553	439	290	151	27
			Married	5,360	...	...	...	...	30	372	854	1,133	1,262	1,053	576	80
			Widowed	2,193	...	...	...	...	...	8	55	157	417	658	685	213
♀	11,186	12,181	Single	5,563	201	296	488	455	503	863	709	621	532	466	335	94
			Married	2,525	...	...	...	1	14	181	322	525	636	60	257	29
			Widowed	4,093	...	...	...	...	...	13	63	239	624	1,262	1,439	453
Total	23,467	25,317														
					Blind from Childhood‡ (Included in Foregoing)											
♂	2,194	2,468	Single	2,028	280	373	216	264	220	310	185	81	57	31	11	...
			Married	389	...	...	...	...	7	89	110	91	61	23	7	1
			Widowed	51	...	...	...	...	...	...	10	11	12	9	8	1
♀	1 811	2,153	Single	1,954	201	296	164	188	192	332	217	178	99	56	26	5
			Married	143	...	...	...	1	6	41	37	37	14	7	...	...
			Widowed	56	...	...	...	...	...	...	7	10	21	12	5	1
Total	4,005	4,621														

† In this column ♂ denotes males, and ♀ females.
‡ One-third of patients "Blind from Childhood," were blinded by ophthalmia neonatorum (approximately 1,500).

TABLE 2.—PROPORTION OF CASES OF OPHTHALMIA NEONATORUM IN DISEASES OF THE EYE

Illinois Charitable Eye and Ear Infirmary, Chicago
(Years 1909-1910)
(Reports Illinois Charitable Eye and Ear Infirmary, Chicago, 1909-1910)

Total cases eye diseases treated	10,361
Total cases ophthalmia neonatorum	145
Percentage of ophthalmia neonatorum	1.30

Massachusetts Charitable Eye and Ear Infirmary, Boston
(Year 1913)
(Reports Massachusetts Charitable Eye and Ear Infirmary, Boston, 1913)

Total cases eye diseases treated	28,652
Total cases ophthalmia neonatorum	298
Percentage of ophthalmia neonatorum	1.04

Manhattan Eye, Ear and Throat Hospital, New York
(Year 1913)
(Reports Manhattan Eye, Ear and Throat Hospital, New York, 1913)

Total cases eye diseases treated	21,280
Total cases ophthalmia neonatorum	72
Percentage of ophthalmia neonatorum	0.3

New York Eye and Ear Infirmary, New York
(Years 1912-1913)
(Reports New York Eye and Ear Infirmary, New York, 1912-1913)

Total cases eye diseases treated	24,922
Total cases ophthalmia neonatorum	20
Percentage of ophthalmia neonatorum	0.08

TABLE 3.—COMPARATIVE TABLES SHOWING BLINDNESS CAUSED BY OPHTHALMIA NEONATORUM
(Norris and Oliver: System of Ophthalmology, iii.)

	Cases	Per Cent.
Magnus' table of 2,528 cases of blindness in Germany: Ophthalmia neonatorum caused blindness in	275	10.876
Trousseau's table of 625 cases of blindness in France: Ophthalmia neonatorum caused blindness in	29	4.60
Oppenheimer's table of 572 cases of blindness in the United States: Ophthalmia neonatorum caused blindness in	18	3.10

TABLE 4.—THE CAUSES OF BLINDNESS IN LONDON SCHOOL-CHILDREN
(Harman: Preventable Blindness)

(Based on 362 Cases)	Per Cent.
Congenital defects	25.34
Ophthalmia of new-born	36.36
Congenital syphilis	17.60
Optic atrophy	9.36
Purulent ophthalmia	2.20
Small-pox	0.82
Sympathetic ophthalmia	2.75
Phlyctenular ophthalmia	1.95
Malignant disease	0.27

TABLE 5.—STATISTICS GATHERED BY VARIOUS WORKERS OF BLINDNESS PRODUCED BY OPHTHALMIA NEONATORUM
(Harman: Preventable Blindness)

	Per Cent.
Reinhard, Germany, Austria, Denmark, Holland	40
Claisse, Paris	46
Magnus, Breslau	34
Katz, Berlin	41
Compare with L. C. C. blind schools	36.36

TABLE 6.—CASES OF OPHTHALMIA NEONATORUM FROM THE MASSACHUSETTS CHARITABLE EYE AND EAR INFIRMARY
(Massachusetts Charitable Eye and Ear Infirmary Reports, 1913)

Year	Number Under Observation	Number Made Partially Blind	Per Cent.
1907-1908	46	12	26
1908-1909	116	29	25
1909-1910	119	13	10.9
1910-1011	107	11	10.2
1911-1912	108	9	8
1912-1913	142	23	16

* Read at a joint meeting of the Chicago Medical and Chicago Ophthalmological societies in a "Symposium on Preventable Blindness," May, 1914.

this disease, which is very malignant and which attacks the infant at birth or immediately after and almost always results in total destruction of the sight—usually of both eyes—or in very seriously impaired vision, is now considered preventable, and if proper measures had been instituted at the time of birth, few or none of these cases would have occurred. It is not pertinent in this connection to discuss the means of prevention, which are well known; but it can at least be pointed out, with emphasis, that the so-called "sore eyes" of babies is a highly dangerous affection, and that its treatment should be prompt and energetic and carried out by a thoroughly competent person.

The New York Association for the Blind in a pamphlet[1] on this subject says:

The official census of the blind for the state of New York, taken in 1906, gives a total of 6,200 blind persons in the state. Of these the cases of preventable blindness numbered 1,984, or 32 per cent., of the whole. And of these preventable cases there are 620 classified as blindness caused by ophthalmia neonatorum, or 10 per cent. of the whole number of blind persons in the state of New York. This means that to-day there are over 620 blind persons in this state who would never have been blind had a harmless preparation (Credé's method) been put into their eyes when they were born.

From the same instructive pamphlet Tables 7 and 8 are taken.

Table 7 shows the number of new pupils admitted into ten of the principal schools of this country during the year 1907, and the proportion of those admitted who had lost their sight from ophthalmia of the newborn.

TABLE 7.—NEW PUPILS IN 1907 BLIND FROM OPHTHALMIA

Schools for the Blind	New Admissions	Ophthalmia of New-Born	Per Cent.
N. Y. State School for the Blind, Batavia, N. Y.	13	4	30.76
Penn. Institute for the Blind, Overbrook, Pa.	27	9	33.33
Perkins Institute and Mass. School for the Blind, Boston	43	13	30.23
Colorado School for the Blind, Colorado Springs	7	3	42.85
Western Penn. Institute for the Blind, Pittsburgh	28	8	28.57
Missouri School for the Blind, St. Louis.	19	6	31.57
Conn. State Board of Education for the Blind, Hartford	8	1	12.50
Ohio State School, Columbus	36	7	19.44
Maryland School for the Blind, Baltimore	13	4	30.76
Ontario Institute for the Blind, Brantford, Ont.	23	5	21.73

The average of new admissions in these ten schools for the blind shows that 28.14 per cent. were victims of ophthalmia of the new-born. More than one-quarter of the new pupils admitted during 1907 were therefore needlessly blind.

Table 8 shows the admissions for eight years, 1900-1907, to one school, the Pennsylvania Institute for the Blind, at Overbrook, Pa., and the percentage of pupils admitted each year who had lost their sight from ophthalmia neonatorum.

TABLE 8.—PUPILS BLIND FROM OPHTHALMIA ADMITTED TO PENNSYLVANIA SCHOOL FOR THE BLIND

Year		Per Cent.
1900	11 out of 25 =	44
1901	10 out of 28 =	35
1902	9 out of 39 =	23
1903	14 out of 50 =	28
1904	15 out of 58 =	25
1905	21 out of 42 =	50
1906	12 out of 38 =	31
1907	9 out of 34 =	26
1908	11 out of 29 =	37
1909	15 out of 34 =	44

Average for ten years 33.68 plus per cent. needlessly blind.

1. New York Association for the Blind, Special Committee on Prevention of Blindness.

It is instructive also to note the statistics given in this pamphlet relative to the activity of midwives in obstetric practice:

In Chicago, in 1904, we find 86 per cent. of all births, principally among Italians, reported by midwives. In Buffalo, N. Y., with a population of about 400,000, nearly one-half of the births, in one year, were attended by midwives. In New York City, in 1905, 43,834 births, or 42 per cent., of the whole number, were attended by midwives, employed largely by Italians, Austro-Hungarians, Polish Jews and other immigrants. For the year 1907, in New York City, there were 68,186 births reported by physicians, and 52,536 reported by midwives. In September, 1908, the registered midwives in the five boroughs of New York City numbered 1,382.

The author of these reports well concludes:

In the face of these figures it is idle to talk of the elimination of the midwife. . . . Let us see to it that our midwives are trained, controlled and made fit for the responsible duties they undertake to perform.

The economic side of the question is likewise a matter of considerable moment. It is estimated that it costs the state $3,000 to educate a blind child. The proper equipment and maintenance of blind schools, etc., likewise require a considerable expenditure. To these sums may be added the loss to the individual in earning capacity, the curtailing of "avenues of opportunity," etc., which his affliction necessarily imposes.

The disease itself—its etiology, pathology, clinical course and treatment—while not properly within the scope of the present consideration, may be given a brief reference.

Ophthalmia neonatorum is an acute purulent conjunctivitis occurring in the new-born. The cause of the infection is the gonococcus of Neisser. Bacteriologic examination has demonstrated that cases occurring before the end of the third day are almost always due to the neisserian infection. Later infections are usually produced by the Koch-Weeks bacillus, the pneumococcus, the Klebs-Loeffler bacillus, etc.

It is generally admitted that infection, as a rule, takes place from the vaginal secretion of the mother entering the conjunctival sacs during the period of the passage of the child's head along the genital tract. Ante-partum infections are recognized as of rare occurrence; post-partum infections from soiled linen, etc., also occur.

The appearance of an eye suffering from ophthalmia neonatorum varies according to the stage of the infection. At the outset, the conjunctiva is reddened; by the third day the lids are glued together with mucopus, the lids become swollen, and as the process develops, the discharge changes to a copious, creamy pus; the ocular conjunctiva becomes greatly swollen, and difficulty is experienced in separating the lids; the cornea may become hazy and ulcerated; gradually the process subsides, the swelling and discharge diminish, and the disease passes into a subacute stage.

The distinguishing characteristics of the disease are the swollen condition of lids and conjunctiva, and the purulent discharge. Corneal involvement, with its sequelae, is the danger that threatens the integrity of the visual function. It may be accepted as an axiom that a discharging eye is always a dangerous eye; and in the case of an infant, such a discharge occurring within the early days following its birth demands prompt identification and energetic treatment.

As far as the treatment of the disease itself is concerned, the recognized procedures all have this in com-

mon, namely, to negative the action of the invading organism, to keep the eye freed from the purulent secretion, to anticipate corneal involvement, to assist the reparative process and prevent the spread of the infection.

The greatest field of opportunity, however, lies in the prevention. To accomplish the highest degree of success in this direction two important factors must be carried out: first, the utilization of prophylactic measures; second, early recognition and prompt treatment of the disease.

As to prophylactic measures, obstetricians advise—as a routine procedure—the rendering of the genitals and genital tract aseptic by suitable measures; and such procedures, it is recognized, may prove of especial importance in preventing an infection.

The value of the Credé method as a prophylactic measure is generally admitted. At birth the child's eyes are gently cleansed and one drop of 2 per cent. solution of silver nitrate instilled into each eye. Credé, at the Leipsic Lying-in Asylum, had averaged 10.8 per cent. of cases of ophthalmia; after the introduction of this prophylactic method he found that the infections were reduced to from 0.1 to 0.2 per cent.

If this method of prophylaxis were in universal use, it is certain that the proportion of ophthalmia neonatorum cases would be greatly reduced; and if, in conjunction with the method, practical measures might be devised to insure the early recognition and early treatment of the disease, it is not unreasonable to assert that such infections might be almost entirely eradicated.

A survey of the foregoing facts, which embody the observations and the views of numerous earnest workers in this humanitarian field, causes one to pause and reflect on the colossal problem of prevention which is presented. The committee of the Chicago Opthalmological Society is determined to do what little it may in ameliorating the conditions and, if possible, inaugurate in the state of Illinois a practical campaign of prevention.

A cursory study of the situation discloses many perplexing problems which only patience, perseverance, discretion and cooperation may overcome. The plan proposed and carried out by the New York Association for the Blind appeals to our committee as one most likely to accomplish the largest measure of success, and at present we are engaged in attacking the problem along the lines suggested.

This plan is described by the New York Association for the Blind as follows:

> The methods of work for the suppression of infant ophthalmia may be divided into the following groups:
>
> 1. Educational.
> 2. Legislative.
> 3. Cooperative.
>
> *Educational.*—Through the preparation, publication and dissemination of printed matter, emanating from the committee or approved by it; through public lectures, addresses and exhibits; and by means of the press, on whose generous assistance the committee greatly relies.
>
> The object sought is to spread among the general public the knowledge that infant ophthalmia is a dangerous, infectious disease, fatal to sight unless checked at the time of the birth of the child, easily preventable then if simple precautions are taken; to inform parents, more especially, of the dangers which threaten the sight of their children at birth, and the preventive measures which should be taken; and to advocate the universal adoption of such measures.
>
> *Legislation.*—To promote such legislation as may be needed to accomplish the object in view—the prevention of the unnecessary blindness of infants.
>
> *Cooperation.*—In furtherance of the same object, the committee seeks and invites cooperation with medical societies, health officers, ophthalmic, maternity and other hospitals in which children are born, dispensaries, city missions, settlements; with schools, institutions and associations for the blind, and with all societies engaged in work for children and for social betterment; with district visiting nurses, and with all persons who are already engaged in this work or who desire to help in it.

The foregoing "plan of campaign" appears logical and practical, and in conducting the work along these lines our committee is sanguine that a measure of success will be attained which shall serve to place our own state in a creditable position on the question of the prevention of blindness due to ophthalmia neonatorum. Even a small measure of success will be a distinct accomplishment, and will contribute a not inconsiderable part toward sparing many little ones the sad ravages which this baneful disease inflicts.

104 South Michigan Avenue.

MANAGEMENT OF DELICATE AND PREMATURE INFANTS IN THE HOME*

H. M. McCLANAHAN, M.D.
OMAHA

The premature or delicate infant has an equal right to life with the robust. Indeed, its frail condition should insure it every possible care, since because of its feebleness its life's prospect is not nearly so good. While I have no available data, such at least is my personal experience. The fact that I have seen several striking examples of the possibilities of saving the lives of some of these cases and believe that not sufficient care in their management is practiced, is my excuse for presenting this brief paper.

The two general requirements in the care of premature infants are the maintenance of body heat, and proper nourishment.

I. THE MAINTENANCE OF BODY HEAT

In order to sustain life, body heat must be maintained and also the rapid dissipation of heat prevented. Heat is given off from the body by the excretions and feces and urine, by the lungs in the form of vapor, and from the skin. Vierordt states that 73 per cent. of body heat is eliminated by radiation and conduction from the skin. This heat loss can be greatly limited. My experience in a number of cases with the modern incubator has not been satisfactory. The infants live a few days and then die even when they are not losing weight. For the last several years I have adopted the following method. It is not at all original and the method is described in some of our modern text-books.

I direct that an ordinary clothes-basket 24 inches long be procured. This can be purchased in any village. The bottom is padded so that the basket has a depth of 8 inches. It is then lined with white oilcloth and over this a layer of cotton batting held in place by being stitched through the sides of the basket. This in turn is covered with white flannel. The flannel

* Read before the Section on Diseases of Children at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

covering for the basket is fastened over the top by means of safety-pins so that the upper portion can either be turned back or fall about the neck of the infant, leaving the body surrounded by an air-space.

Heat is maintained by means of hot-water bottles. I always direct that these be covered by flannel. The 12-ounce citrate of magnesia bottle is convenient, as it has a rubber cork and a wire fastener that insures against leaking. Five of these bottles are sufficient to maintain proper temperature. A thermometer is kept in the basket and the heat maintained at from 90 to 95 degrees. During the night when the room temperature is lower it may be necessary to cover the basket with a rubber sheet in order to maintain the temperature. It will be noted that while the body is in a warm atmosphere the face is exposed so that the infant breathes the atmosphere of the room. As the room can be well ventilated it breathes, I think, a better air than when confined in an incubator.

The body of the infant is anointed with olive-oil, wrapped in a layer of cotton batting—loosely applied—and this in turn in a soft flannel blanket. The infant can be fed in the basket without being removed. Indeed, it need be taken out only when it is necessary to oil the body. Absorbent cotton pads can be used for napkins.

As soon as the infant begins to gain in weight the temperature of the basket can be lowered and in my experience in from two to three weeks the hot-water bottles can be dispensed with.

II. NOURISHMENT

This is vitally important because of the caloric needs of the infant. Breast-milk of course is the best food, but as emphasized by Drs. Holt and Morse, breast-milk should be diluted. Many of these infants are not strong enough to draw milk from the breast and there is no doubt in my mind that physicians and attendants are frequently deceived in believing that because the infant takes the breast it is getting nourishment. Only recently I was able to demonstrate to the attendant by weighing the infant before and after a breast-feeding that there was no appreciable gain in weight. In these cases the milk should be pumped from the breast regularly, diluted with an equal quantity of water, and fed to the infant. If it does not retain this dilution then the milk should be further diluted. Whatever dilution the infant takes, the food should be rapidly increased in strength. There are cases in which the infants are not strong enough to nurse from the bottle and in these cases some other method must be adopted. In these cases I have found the Breck feeder a life-saving appliance. At the Child-Saving Institute this method of feeding is frequently employed with normal infants who refuse to take the bottle. It seems to me superior to the medicine-dropper and certainly requires less skill than gavage.

For the first two or three days at least, food should be given every hour; after this the feeding interval should be lengthened. When it is not possible to procure breast-milk, then the feeding becomes very important. In two recent successful cases I began with the following:

Whey	5 parts
Water	5 parts
Milk-sugar	1 part
Lime water	1 part

In one of the two cases the infant vomited this food. I directed that the whey be made from skimmed milk, when it retained its food. As soon as it retains this formula nicely, the strength should be increased by the addition of either milk or cream.

CONCLUSIONS

1. The premature or delicate infant may develop into a strong individual. I have in mind three of these cases. One patient was normal in weight at 5 months. The other I had the privilege of examining at the age of 3 years. It was in every way a normal child. The third is now a young man in his twentieth year. He is normal physically and above normal in his intellectual attainments.

2. Among dangers to be guarded against are the regurgitation of food in the throat and the suction into the larynx. I have seen one fatal case from this cause. Temperature should be taken in order to guard against fever. In a recent case that I saw with the physician, the temperature reached to 105, due as I believe to the excessive external heat. In every case a thermometer should be kept constantly in the basket. The most frequent mistake, however, is letting the infant take the breast and assuming that it is actually getting food, or if it vomits assuming that the breast-milk does not agree with it.

3. Finally, the hopeful symptoms are a gain in weight and normal yellow stools.

Brandeis Building.

ABSTRACT OF DISCUSSION

DR. HENRY DWIGHT CHAPIN, New York: I wish to emphasize what Dr. McClanahan has said concerning incubators. I treated about 150 babies in different incubators and almost all of them died. While we gain in one factor, that is, heat, we lose in a vital factor, and that is fresh air. Most of them do not deliver sufficient fresh air to the infant, and these premature infants are unusually susceptible to lack of air. I think incubators should be abandoned entirely. I have used such appliances as Dr. McClanahan suggests. In the hospital I have two modern incubators but I do not use them. These premature infants have great difficulty in swallowing. Some of them are so difficult to feed I have been obliged to resort to gavage. I have saved one or two that I am sure would have otherwise been lost, by feeding in this way. One or two have died suddenly. Necropsy showed food had gone into the larynx. The nurse must be warned about slow feeding with any kind of a feeder.

DR. JOHN ZAHORSKY, St. Louis: Most of us who have had experience with expensive apparatus for warming babies have discontinued its use. One method is valuable in the ordinary home; that is, to use an ordinary soap-box, and an ordinary steam or hot-water radiator, and put the box with one side to the radiator so that the heat from it will pass into the box. The heat can be regulated by putting the box nearer or farther away from the radiator. This method can be used with the ordinary stove, with which, of course, someone will have to see that the fire is uniform. The distance will regulate the amount of heat the baby gets. Especially are mistakes made in the amount of heat to which the baby is subjected. Some nurses seem to think the warmer the baby is kept the better. The most common injury to the baby is from too much heat, which will produce injury that it may take a few days to overcome. It often produces cyanosis and death. A good rule is not to keep the temperature over 90. From 86 to 88 is usually sufficient. Watch the baby's rectal temperature, and if it goes lower than 96 degrees do not heat the incubator but warm the baby with a hot bath. Heating by hot air is a slow process. Most premature babies that are not sickly in any way die of exhaustion because they are not sufficiently fed. After the third or fourth day they get attacks of cyanosis, which means exhaustion of the respiratory center. In some way the baby must get enough

food or it will die. The premature baby should have one-fifth of the body-weight in mother's milk daily. Commence on one-twentieth of the body-weight the first day—do not wait three days as we do with the normal baby, but commence to feed at once. It has no reserve store to sustain life. Every day the amount should be increased until it reaches one-fifth of the body-weight. It is best given with a dropper, a spoon, or, as Dr. Chapin has emphasized, with a catheter. One may get it down in six feedings, or it may take ten, twelve or even twenty-four, but the baby must receive one-twentieth of its body-weight during its first twenty-four hours.

L. R. DeBuys, New Orleans: The principal problem we have is to maintain the body temperature, and in doing this we have to be careful not to get it too high. A plan I have used is to make a gown of two layers of Canton flannel with one layer of cotton batting between. The baby is put in this and the warmth put externally—either hot bottles or hot-water bags. Covering all is a blanket. Another point that has not been mentioned is the placing of a thermometer inside the top covering and external to the baby's gown, to which it is pinned. You can tell then whether you are giving the baby enough or too much heat.

Dr. S. M. Hamill, Philadelphia: I, also, protest against the use of the older type of incubator, and emphasize one point in Dr. McClanahan's paper that seems to me important in the case of the premature infant, namely, supplying a sufficient amount of fresh air. I have not used an incubator for some years. I have been following much the same course that Dr. McClanahan has outlined. I had an experience a year and a half ago, which demonstrated that at least one premature infant was able to breathe an air of low temperature without detriment. I had the infant forced on me in the children's ward of the Polyclinic Hospital. None of the small rooms in the hospital were then available. Being an advocate of fresh air, I keep the windows open constantly, winter and summer. Having had this child brought into that ward it became necessary either to rob the children in the ward of their usual amount of fresh air, or to keep the windows open and endeavor to maintain the body-heat of the premature infant while at the same time letting it breathe the cold, fresh air of the ward. On the principle of doing the greatest good to the greatest number, I chose the latter course, and put the baby in a specially prepared clothes-basket close to a radiator. I succeeded in maintaining the heat about the body of the baby at from 90 to 95 F., whereas the temperature of the ward often fell as low as 50 or 55 F. at night. That baby did better than any premature baby I have ever seen. I have had experience in keeping these babies in room temperature of from 65 to 70 degrees for a short time, but never before at such a temperature as that above indicated. I am not advocating this as a proper procedure, but it illustrates the fact that these babies can breathe an air at low temperature without harm.

Dr. F. B. Talbot, Boston: Concerning the conservation of energy in the new-born, the new-born baby maintains his own body-heat after birth by using up the glycogen which has been deposited in the liver. In a certain number of instances when all the glycogen is used up, the body-fat is converted into sugar, and is used in this form. If the mother's milk comes in on the third day, and often later, they may not use their own body-fat at all. Under those circumstances they do not lose weight. If it does not come until five or six days they lose a good deal of body-fat and weight. The obvious conclusion to draw from this is that if the baby has not much fat, is not well developed, is a weak baby, it must be fed early to give it energy to keep its life, and to maintain its body-heat. This discussion goes with accurate scientific measurements of heat and determination of the respiratory quotient.

Dr. F. N. Rogers, Manchester, N. H.: One point I would bring out that Dr. McClanahan mentioned in his clothes-basket arrangement is that the weight a child would lift by respiration is simply the displacement of air. When cotton batting and pads are put about the child, there is apt to be more or less weight to be displaced, which takes energy.

Dr. Henry F. Helmholz, Chicago: In those cases with syncopial attacks during the first or second day, I have used in two cases 6 per cent. dextrose solution with excellent results. The child in one instance was practically moribund, but responded quickly to an ounce of 6 per cent. dextrose solution. That was kept up at five-hour intervals. There was no breast-milk available and the child from that time on did very well. The following day we were able to obtain some breast-milk, and the child recovered. The dextrose was administered hypodermatically.

Dr. H. M. McClanahan, Omaha: Some years ago I bought what I thought was a model incubator, and all our premature babies died about the fifth or sixth day, until I became discouraged. In all the cases I cited in my paper I was called to the home. Gavage is not as convenient there as in the hospital. The infant should not go too long without food. I believe a thermometer should be constantly present in the basket, and the temperature of the basket should not go above 90 or 95. Secondly, I emphasize, also, the danger of letting a baby's temperature go to 104, 105 or 106. In the last child I lost, one I saw an hour before it died, the temperature was 106, I believe due to the carelessness of the nurse in letting the temperature of the basket get too high. The temperature should be taken as a routine measure every twenty-four hours at least.

INTRACRANIAL HEMORRHAGE IN THE INFANT

WITH HISTORY AND NECROPSY REPORT OF A CASE

J. W. Shuman, M.D., Sioux City, Iowa

Recently I was called to conduct a necropsy in the case of an infant succumbing to some obscure lesion, and through the kindness of the attending physicians, Drs. J. W. Flageolle and G. S. Browning, the following clinical history was obtained:

History.—Dr. Flageolle was called Aug. 18, 1914, to see baby G. W., aged 6 weeks. The child had not been well since the sixteenth, but not ill enough to need medical attention. The history was negative as to traumatism or syphilis. He found the baby irritable when disturbed. There was considerable tenderness over the lower abdomen but no distention; the mother stated that the baby cried in his sleep and also when she attempted to pick him up. There had been no spasms, the Cheyne-Stokes respiration was present, the temperature was 98.6, pulse 90, and as no bowel movement had been secured since August 16, attempts were made per enemata to empty the bowel, but without satisfactory result. The following day at 9 a. m., Drs. Browning and Flageolle examined the child noting the following: pupils unequal (left dilated, right, "pin-point"); Cheyne-Stokes respiration, clonic spasms, some cervical rigidity and Kernig's sign positive. The clinical diagnosis of cerebrospinal meningitis was tentatively entertained. Death occurred without any change in symptoms at 1 p. m., of the same day.

Necropsy.—Necropsy was held at 4:30 p. m., the same day, showed a well-nourished child, with slight bulging of the fontanelles and rigor mortis pronounced; an elongated prepuce with pin-point opening was noted. There were bluish-red discolorations on the back and left leg (post-agonal).

The thoracic and abdominal findings were negative except as to the colon, the mucous membrane of which was dotted with numerous small ecchymotic areas, extending from the ileocolic valve to the anus, with a slight membrane present, which was easily washed away.

No ecchymosis or other evidence of traumatism on the scalp or exterior surface of the skull. On incising the dura mater the brain substance exuded, denoting increased intracranial pressure. The consistency of the brain tissue was extremely soft and pulpy rendering it impossible of manipulation; the cranial bones were normal. On removing the cerebrum subdurally and left posteriorly a well organized, dark blood-clot (1½ ounces) was found compressing, but no

attached to the brain. The brain substance was so soft that definite localizing with it was impossible; no communicating vessel could be observed. A small amount of blood-tinged cerebrospinal fluid was present; smears made from it and examined proved negative for micro-organisms; the cerebellum and medulla evidenced no abnormalities and were normal in consistency.

Pathologic Diagnosis.—Cause of death (1) cerebral pressure, due to (2) subdural hemorrhage (left posterior); (3) cause (?); (4) mucocolitis (mild).

This instance is reported to call attention to the fact that a necropsy is invaluable in checking up the clinical diagnosis and in making a correct finding of the "cause of death." The greatest interest, however, centers in the question as to the cause of the hemorrhage. As noted, there was no sign of traumatism to the head nor was there any fever to indicate acute meningeal infection or brain abscess.

Had there been severe trauma during delivery sufficient to cause hemorrhage, symptoms would have developed before six weeks, but up to that time the child had been apparently normal. With no previous derangement, as convulsions or severe coughing to increase the intracerebral blood pressure, and no traumatism to the head, the cause of the hemorrhage remains an unsolved problem.

Choyce (A System of Surgery, iii) quoting Karl Henschen (Verhandl. d. Deutsch. Gesellsch. f. Chir., 1912) states that it is only comparatively recently that the head injuries that the child is liable to during birth have received due attention from diagnosticians and surgeons and that the frequency of intracranial hemorrhage in the newborn has been observed in several long series of necropsies and results have differed considerably. Some observers have found hemorrhage in 2 per cent. of all post-mortem examinations of young infants; others in as many as 12 to 13 per cent. It is certainly far from an uncommon injury and it must be remembered that probably a large number of infants recover from it with or without persistent symptoms. The frequency of the so-called congenital and infantile hemiplegias and diplegias confirms this view.

It is further claimed that the commonest lesion is the subdural hemorrhage; laceration of the veins entering the longitudinal sinus and laceration of the tentorium are the chief sources of the bleeding. Even abnormally quick labor and cesarean sections have been followed by it. The hemorrhage usually occurs at or in a few hours following birth, but may not manifest itself for days or even weeks, clinically, and it is probable that convulsions occurring within a few weeks of birth are due to traumatic lesions of the brain. The newborn's brain is very tolerant of compression and consequently the symptoms are apt to be slight or obscure. Definite localizing symptoms are frequently, perhaps usually absent. The tendency to hemorrhage not uncommonly present, especially in syphilitic infants, is probably an important factor in many cases.

A Suggestion Concerning Passive Congestion in Rheumatism.—I desire briefly to call attention to a little procedure commonly used by surgeons with benefit in treating infections and which may be useful in the treatment of acute articular rheumatism. I refer to passive congestion produced by constriction of an extremity or otherwise. Acute articular rheumatism is a systemic infection with particular affinity for joint structures, and this procedure, which aids Nature by flooding the involved portion with Nature's own antibodies, is sound in principle. Venous congestion does more than this, however, when salicylates are being administered. The ingested salicylates exist in the alkaline blood and tissues only as salicylates, and these have no germicidal action. However, in the presence of greatly increased carbon dioxid tension, some salicylate is converted into salicylic acid, and this is a powerful germicide. It is supposed that in the congestion of an inflamed joint this conversion takes place. Thus if the salicylates do have any direct effect on the organisms causing the disease, that effect is increased by retarding the venous circulation of a part involved.—J. S. LANCASTER, M.D., Los Angeles.

Therapeutics

PREVENTION IS GREATER THAN CURE

(*Continued from page 1671*)

VIII

DUST

We have already briefly referred to what is now understood as pure air, and the effect of stagnant and overmoist air on the individual. The injury caused by dust or impure air, however, has not been sufficiently emphasized.

The excellent discussion of this subject two years ago by Prof. Charles Baskerville of the College of the City of New York[1] has been used as a basis for this article.

For practical purposes the impurities of the air may be divided into two classes, dust, and fumes or gases. In the cities the dust contains pulverized excreta of human beings and animals, the material which is constantly being worn from the buildings and pavements, the waste from houses, stores and factories, micro-organisms, leaves, remains of fruit, and other parts of plants and trees. It is interesting to know that the air of subways contains many minute angular particles of iron.

In the country the dust consists to a larger extent of particles worn from the road. The substances of which the road is composed are more or less pulverized by the traffic. This dust is especially increased by heavy carts and automobiles. The country roads are disintegrated in part by the frosts of winter, in part by the wind, by the action of the falling rain, and by the transporting power of water. Oiled roads, as soon as they dry, give rise to particles of crude, irritant tar-oil which are wafted with the dust.

These components of the dust are all more or less irritating, not only to the mucous membrane of the respiratory tract, but also to the eyes. When the amount of dust is small the irritation may be slight, but when the amount of dust is large and when there is a considerable amount of tar-oil present, the irritation may be very troublesome.

The prevention of this dust is accomplished by care in the building and in the maintenance of the roads. The best structure for a roadbed and top dressing must be decided by the region, by the variations in climate, by the geography of the locality, and by the character of the traffic. There is doubtless no one best roadbed.

There is no question of the necessity for a city to water its streets. There, also, seems to be no question of the advantage of oiling turnpikes and country roads, if they are built of material that allows of oiling. Whether or not a city should oil its streets is a subject for discussion.

Baskerville suggests as a suitable disinfectant and agent for the diminution of dust a very dilute chlorinated lime solution. The chemical is cheap, and any outlay entailed would be more than covered by the decrease in dust-borne diseases. He also calls attention to Dr. Nesbit's work in ridding Wilmington, N. C., of flies by sprinkling the streets five times with an attenuated mixture of water with light pine-oil. An incidental effect of the suppression of the flies was the stamping out of a typhoid fever epidemic.

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1. Baskerville, Charles: New York Med. Jour., Nov. 23, 1912, p. 1061 and Nov. 30, 1912, p. 1119.

The other part of the impure air problem has to do with noxious fumes and gases, and is especially important in cities. There may be mentioned first the danger from illuminating gas. The chief poisonous constituents of this are "ammonia, hydrocyanic acid, hydrogen sulphid, carbon disulphid, other gaseous sulphur compounds, and carbon monoxid." The danger from the inhalation of concentrated illuminating gas, such as is often taken with suicidal intent, are too well known to require repetition, but the hygienic importance of good ventilation and the constant renewal of outside fresh air to a room where illuminating gas is constantly, or for a long time, burning is not sufficiently understood. Also, the depressing influence and the actual blood disturbances, even anemia, caused by the constant inhalation of the gas from an illuminating-gas leak in a house or building is not sufficiently noted, and is not investigated by boards of health as it should be. Leaks of illuminating gas, which occur so constantly and frequently in tenement houses, stores and factories, have not been sufficiently considered as a menace to health.

The atmosphere outdoors in manufacturing towns is contaminated extensively with the smoke produced by the combustion of large quantities of coal. The combustion gases from this source are of a highly poisonous nature. They may be diminished to a considerable extent by proper management of the fires by skilled firemen. An important constituent of this smoke is the soot, which is due to incomplete combustion, and which may be "formed partly by the mechanical removal of dust by the chimney draft, and partly by the decomposition of the fuel, such as takes place in the process of destructive distillation. It consists mainly of carbon, tar and ash or mineral matter together with small amounts of sulphur and nitrogen compounds, and often possesses an acid character." The sticky properties of soot are due to the tar which it contains.

Sulphur dioxid is one of the most important impurities of city air, especially in manufacturing towns, and this is derived to a large extent from the combustion of coal and of coal gas. Its presence in the air has a serious effect on susceptible persons, and particularly damages the respiratory organs. It tends to cause anemia and bronchitis. Various efforts are made to discourage the dissemination of smoke in communities. It has been suggested that more might be accomplished if the matter were placed by municipalities and boards of health "in the hands of men qualified to assist manufacturers to suppress the nuisance without causing them difficulty." Methods have been invented whereby much of this waste combustible material may be collected with profit to the manufacturer and with health and happiness to the surrounding community. The smoke nuisance should be most seriously considered by all cities.

The dust which is present in the air of many shops and factories, and which is produced incidentally to the various processes employed in the mechanical arts, is a factor of considerable importance in connection with the health of the workmen.

These dusts may be divided into three classes: (1) insoluble inorganic dusts; (2) soluble inorganic dusts, and (3) organic dusts.

The first class, the insoluble inorganic dusts, includes metals such as antimony, arsenic, type metal, brass, bronze, copper, aluminum, iron, steel, lead, manganese, silver, tin and zinc, in a state of fine division; also various ore dusts such as that from iron ore, silica, sand, emery, flint, glass powder, carbon, graphite, diamond, coal, soot, brick dust, marble, granite, cement, terra cotta, lime, gypsum and plaster.

The second class, the soluble inorganic dusts, includes substances which may be swallowed and absorbed, such as metallic particles like lead, brass, zinc, arsenic, mercury and silver, and soluble inorganic salts.

The third class, or organic dusts, includes "sawdust, fur, skins, feathers, broom and straw, grains and flours, jute, flax, hemp, cotton, wool, carpet dust, street sweepings, tobacco and tobacco-box dust, hides and leather, felts, rags, paper, horsehair, etc."

These various dusts affect chiefly the respiratory organs, but to a less extent the eyes and the skin. In the lungs they produce a condition of fibrosis of the lung to which Zenker gave the name "pneumonokoniosis." Various forms of this disease have been described, depending on the nature of the irritant producing the fibrosis. Among them may be mentioned anthracosis, or coal-miners' disease, caused by the inhalation of the dust from anthracite coal; siderosis, caused by the inhalation of the dust from metals, especially from iron, and chalicosis, caused by the inhalation of mineral dusts, resulting in the so-called stone-cutters' phthisis and grinders' phthisis. The inhalation of iron dust diminishes the respiratory efficiency of the lungs by causing a lessening of their elastic property. It may also reduce the resistance of the lungs to invasion by harmful bacteria. That form of disease distinguished as siderosis exists with special frequency among metal polishers, knife grinders and others engaged in metal work.

Among the diseases caused by the organic dusts may be mentioned flax dressers' disease, a kind of pneumonia due to the inhalation of particles of flax and alkaloidal poisoning from African boxwood, seen in workmen engaged in shuttle making.

The prevention of these various forms of disease incidental to various forms of industry without unduly interfering with the profits of the business is often an exceedingly difficult problem. Among the suggestions which have been made, and which are employed with more or less advantage may be mentioned:

1. The removing of the dust from the room in which it is produced by forcible suction applied at the seat of its production. This is especially applicable in the trades of grinding and polishing.

2. When irritating dust affects the eyes, glasses for their protection should be worn by the workmen.

3. Those engaged in sorting rags in paper factories, workmen on threshing machines, millers, mixers in glass factories, stone cutters, sculptors and all others in factories where there is irritating dust should wear respirators over the mouth and nose to prevent the dust from entering the respiratory organs.

4. Those employed in the manufacturing of oxidizing agents or lead workers should change their clothes before leaving the factory.

5. The dust on the floors of printing, type-casting, metal-working and similar establishments should be laid by means of certain preparations adapted for this purpose. Probably the best are mineral oils which accomplish this result very satisfactorily.

6. General ventilation of the shop should be employed as far as practicable to dilute the unavoidable dust and remove it as far as possible.

7. The value of vacuum cleaning for factories should be emphasized as much as it is for office buildings, stores and private houses.

MINE SANITATION

While this subject is not of much general importance, it is of great importance to some of us, and should interest all. New methods of saving life and of avoiding accidents, and the condemnation of criminal carelessness should ever be subjects worthy of careful review, if not of individual study.

Mine problems, so well understood by some physicians, but so little by the majority, are splendidly outlined in an article by Dr. N. P. Brooks[2] which it would be well for all interested to read carefully. The main points for consideration are proper and scientific ventilation, proper lighting methods, methods to diminish dust, proper drainage, proper disposal of excreta of men and animals, and a greater care of the personal hygiene of the miners.

Briefly, the gases in coal mines are as follows:

CH_4, methane or marsh gas, is "colorless, odorless, tasteless, lighter than air, in a pure state burns with a blue flame, and is very explosive when mixed with certain proportions of air." When breathed in a pure state it affects the individual not unlike laughing gas, and does not cause harm when inhaled as long as the supply of oxygen is sufficient.

CO, white-damp or carbon monoxid, "is a colorless, odorless, tasteless gas, lighter than air, combustible, and explosive when mixed with a certain proportion of air." This gas is very poisonous, and if 1 per cent. of it is breathed for any length of time it produces dyspnea, headache, loss of sight, soon paralysis, beginning with the lower extremities, and finally unconsciousness. When unconsciousness is caused by carbon monoxid the patient may not be resuscitated at all, or if he is, his mentality may be seriously injured. A positive indication that this gas is accumulating in dangerous amount is shown by the death of white mice or other small animals, that should be kept in the mines where their condition can be readily observed by the miners.

CO_2, carbonic acid gas, carbon dioxid, "is a colorless, odorless, tasteless gas, heavier than air, and a non-supporter of combustion." The presence of this gas in abnormal amount is readily detected by the dimness of the oil lamps. The first symptoms of a poisonous amount of this gas are increased heart action, lassitude, and headache. If the amount of the gas is very considerable the individual may fall unconscious without even a cry. Men subjected to this poisoning may remain unconscious for some hours, provided they get a sufficient amount of oxygen, and still be resuscitated. "Suffocation ensues when there is 1 volume of this gas to 12 volumes of air."

H_2S, hydrogen sulphid, stink-damp, does not frequently occur in mines, but is very poisonous. Its obnoxious odor causes it to be quickly detected.

Lighting, ventilation and methods of diminishing dust are too technical to be discussed here. Carelessness in the drainage of mines, from the effect that bad drainage can have on the miners, should not be tolerated. Miners who must work all day with wet feet are certainly rendered liable to colds, joint affections and neuritis, if not to more serious illnesses. If they are barefooted, in certain regions, they are liable to acquire the hookworm disease. If they work in rubber boots, the sweating and general lack of elasticity caused by standing all day in rubber is a distinct disadvantage to the individual.

The care of the excreta in mines should certainly be under the control of the boards of health in the regions in which the mines are located, and sanitary measures, now well understood, should be established in every mine. The clothing and cleanliness of the miners and their drinking habits should all be subject to careful supervision, the two former for their individual welfare, and the latter not only for their own welfare but for that of others, as carelessness is an important factor in mine disasters.

As first aid to the injured in accidents and mine disasters must frequently be rendered by fellow miners or their foremen, instruction should be given to all in artificial respiration, in methods of stopping hemorrhage, in the first antisepsis and dressing of injuries, and in the action of the different poisonous gases. Foremen should pass an examination on such subjects.

(To be continued)

2. Brooks, N. P.: Month. Cyc. and Med. Bull., April, 1913, p. 203.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

NORMAL HORSE SERUM (See N. N. R., 1914, p. 243).

Slee Laboratories, Swiftwater, Pa. (The Abbott Alkaloidal Co., Chicago).

Slee's Normal Horse Serum.—Marketed in vials containing 100 Cc.

SERUM ANTIDIPHTHERICUM AND ANTIDIPHTHERITIC GLOBULINS (See N. N. R., 1914, p. 236).

Memorial Institute for Infectious Diseases, Chicago.

Diphtheria Antitoxin.—Marketed in packages of 10,000 units, both in syringes ready for use and in bottles.

Frederick Stearns & Co., Detroit, Mich.

Concentrated Diphtheritic Antitoxin.—Marketed in separate syringe packages containing respectively 500, 1,000, 2,000, 3,000, 4,000, 5,000 and 7,500 units.

BACILLUS COLI VACCINE (See N. N. R., 1914, p. 247).

E. R. Squibb and Sons, New York City.

Bacillus Coli Communis Vaccine.—Marketed in boxes of 6 ampoules containing respectively, 100, 100, 500, 500, 1,000 and 1,000 million killed bacilli, with a syringe.

STAPHYLOCOCCUS VACCINE (See N. N. R., 1914, p. 254).

E. R. Squibb and Sons, New York City.

Staphylo-Acne Vaccine.—Marketed in boxes of 6 ampoules containing respectively, 100 million killed staphylococci, and 20 million killed acne bacilli, 100 million killed staphylococci and 20 million killed acne bacilli, 500 million killed staphylococci and 50 million killed acne bacilli, 500 million killed staphylococci and 50 million killed acne bacilli, 1,000 million killed staphylococci and 100 million killed acne bacilli, and 1,000 million killed staphylococci and 100 million killed acne bacilli, with a syringe.

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SATURDAY, NOVEMBER 14, 1914

THE CEREBROSPINAL FLUID

The importance which attaches to an expansion of our knowledge of the functions of the cerebrospinal fluid in relation to many problems in surgery and medicine has been well summarized in a recent paper by Drs. Frazier and Peet[1] of the University of Pennsylvania. We are impelled to quote their own words because they emphasize so plainly the directions in which progress is demanded. The accumulation of cerebrospinal fluid in abnormal quantities, we are reminded by the Philadelphia investigators, is a factor which must be reckoned with in many intracranial diseases. It is accountable not only for many subjective and objective disturbances, but it is often the determining factor in the fatal cases. How essential it is in diagnosis, prognosis and treatment will be realized by the mere mention of such morbid conditions as hydrocephalus, brain tumors and meningitis. In the treatment of these, so far as it concerns the damaging effect of excessive secretion or inadequate absorption of cerebrospinal fluid, we are helpless and wofully unsuccessful. It is of the utmost importance, therefore, that investigation of the cerebrospinal fluid should be continued until the fundamental principles of secretion and absorption are thoroughly understood, in the hope of finding some effective means of controlling oversecretion or diminished absorption.

Not long ago we discussed some evidence that the cerebrospinal fluid is a typical secretion initiated in the "choroid gland" or choroid plexus of the various ventricles of the brain.[2] Frazier and Peet[1] have been able to elucidate the problem of the secretion and absorption of the cerebrospinal fluid by the production of artificial hydrocephalus. So long as the fluid is widely distributed throughout the subarachnoid and subdural spaces of the brain and cord, it is not easy to ascertain the location of changes in its make-up and movements. The fluid is produced almost entirely within the two lateral, the third and fourth ventricles. This was shown by effecting a closure of the lower end of the aqueduct of Sylvius whereby intracranial pressure is developed. A moderate hydrocephalus may arise without any signs of meningitis. Although the cerebrospinal fluid is without doubt secreted mostly, if not entirely, within these brain cavities, absorption from the ventricles is practically negative and does not take place until the fluid has escaped. The lateral ventricle, therefore, is merely a receptacle, like the bladder, for the storage of fluid. Frazier and Peet agree with Dandy and Blackfan[3] in believing that it is possible to differentiate different types of hydrocephalus from the point of view of etiology, for instance, those with from those without obstruction of the ventricles, by introducing a detectable substance like phenolsulphonephthalein into the ventricles and watching the rate of its reappearance in the excreta. In obstruction this will be extremely slow.

Dixon and Halliburton[4] venture the belief that some product of the brain's metabolism passes to the choroid plexus, and that this stimulates the secreting epithelium, which causes the plexus to become active. This is essentially the postulation of a "hormone" regulation of the production of cerebrospinal fluid. The normal rate of secretion was found by Frazier and Peet to vary widely under normal conditions. It has been suggested that the secretion of cerebrospinal fluid may be controlled by ligation of the common carotid arteries, and this operation has even been recommended in the treatment of hydrocephalus. It is, of course, very desirable to know the effect of disturbance of the cerebral circulation on the rate of secretion in order to place any indicated operative procedures on a sounder scientific basis. In Frazier and Peet's experience, in an observation on man, the rate of secretion was practically uninfluenced by so profound an interference as the ligation. We are inclined to urge, therefore, until contradictory evidence is forthcoming, that the operation of ligating the common carotid arteries should not be endorsed with the expectation of influencing favorably the hydrocephalus that is either of congenital origin or the accompaniment of brain tumors.

Inasmuch as the venous circulation appears to be concerned with the absorption rather than the production of the cerebrospinal fluid, it is not to be expected that disturbances of its mechanism would affect the secretory output of the choroid plexus. Impaired absorption might be expected under certain of these conditions, especially since it has been found that the lymphatics play at best an inconsequential part in the absorption of cerebrospinal fluid. Frazier

1. Frazier, C. H., and Peet, M. M.: Factors of Influence in the Origin and Circulation of the Cerebrospinal Fluid, Am. Jour. Physiol., 1914, xxxv, 268.

2. Compare: The Production of Cerebrospinal Fluid, editorial, The Journal A. M. A., March 28, 1914, p. 1018.

3. Dandy, W. E., and Blackfan, K. D.: An Experimental and Clinical Study of Internal Hydrocephalus, The Journal A. M. A., Dec. 20, 1913, p. 2216.

4. Dixon, W. E., and Halliburton, W. D.: The Cerebrospinal Fluid, I, The Secretion of the Fluid, Jour. Physiol., 1913, xlvii, 215.

and Peet remind us that pressure on the sinuses and obstruction to the venous circulation is no doubt a factor in the accumulation of cerebrospinal fluid so frequently associated with brain tumors, especially of the posterior fossa. As the major portion of the venous circulation of the brain, including the cerebral veins and dural sinuses, leaves the cranial cavity from a point in the posterior fossa, the jugular foramen, it is readily understood why posterior fossa tumors are so frequently and at a comparatively early stage associated with increased intracranial tension which comes from the accumulation of cerebrospinal fluid. In other words, obstruction to the venous outflow is immediately followed by a rise in venous pressure, by the accumulation of cerebrospinal fluid, and a resulting increase in intracranial tension.

The cerebrospinal pressure has been observed by Frazier and Peet to vary with the pressure of the venous sinuses and to be practically identical with it. Under normal conditions, there are certain oscillations which are due to the effect of inspiration and expiration on venous pressure, but they may be arrested by slight increase of intracranial tension. Closure of the carotid circulation causes an immediate, though only transitory, fall of cerebrospinal pressure; but obstruction of the venous circulation is followed by an increase in pressure more or less constant.

Dixon and Halliburton[5] have now added to their earlier investigations[4] a consideration of the effect which marked changes in cerebrospinal pressure produce on other functions. A relatively small increase in cerebrospinal pressure causes stimulation of the respiratory, vasomotor and cardio-inhibitory centers. The stimulating effect is least marked on the respiratory center. When the pressure is increased to a height considerably above the normal arterial pressure, respiration ceases in a few seconds, but the other two centers remain active and the arterial pressure rises enormously in spite of the slow heart; a little later the cardio-inhibitory center is paralyzed, and the continued activity of the vasomotor center still further raises the arterial pressure. This represents, as Cushing[6] has pointed out, a protective mechanism which continues to force the blood along the compressed blood-vessels. Ultimately, however, if the high cerebrospinal pressure is kept up, paralysis of the vasomotor center ensues, and the arterial pressure then falls.

The results of Dixon and Halliburton in relation to the early depression of the respiratory center as the result of cerebral compression accord with the views of Horsley and his colleagues. Cushing has not quite agreed with them on the primary importance of respiratory failure. He regarded the cessation of breathing as the result of fatigue or failure of the vasomotor center which allows the blood-pressure to fall below the intracranial pressure. Anemia of the respiratory center consequently ensues, and respiration, already embarrassed, immediately ceases. At this stage, unless relief is given, the blood-pressure sinks to a level which represents irrevocable paralysis of the respiratory center. The English surgeon, regarding the respiratory center as the most sensitive to mechanical pressure and shocks, recommends that in cases in which death is imminent, in cases of intracranial pressure, artificial respiration should be immediately performed and the skull opened freely.

5. Dixon, W. E., and Halliburton, W. D.: The Cerebrospinal Fluid, III, The General Effect of Increasing the Cerebrospinal Pressure, Jour. Physiol., 1914, xlviii, 317.

6. Cushing, H.: Bull. Johns Hopkins Hosp., 1901, xii, No. 126; Am. Jour. Med. Sc., 1902, cxxiv, No. 3; Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1902, ix.

HIGH SCHOOL ATHLETICS

THE JOURNAL has freely expressed the view in the past that the competitive athletics of our American colleges and universities often harbor unsuspected dangers in that they encourage overdoing on the part of the participants. No one would gainsay that systematic and even strenuous exercise may exert a most wholesome effect on the human organism. But the win-at-any-cost exertion, taxing vital organs to the very limit of their endurance, exceeding the factor of safety in physiologic functions, and sometimes carried to the breaking strain, represents a sort of unjustifiable self-sacrifice that may properly be made for one's country but is never called for to uphold the glory of one's college. The sooner it is realized that there are better tests of manliness than the ability to endure a 4-mile race in the college boat or to complete the football season in spite of acquired injuries, the more wholesome will American college life become.

Unfortunately, there is a widely manifested tendency for the pupil of the high school to ape the performances of his older brother in the college. This is shown in the introduction of Greek letter societies and social functions into the secondary schools, tending to counterbalance some of their wholesome features of social intercourse with the snobbery of exclusiveness and the deteriorating influence of late hours and tiring distractions. Even more baneful, however, is the growing custom of allowing the same sort of intense competitive sports in the high school that are the cause of complaint in respect to their dangers to the older college student.

We are glad to note a spirit of protest awakened in various parts of the United States against all the forces, social and athletic, which tend to deteriorate the American boy (or girl) at the adolescent age of the high school period. One health officer has recently made a public announcement that proper exercise in a well-equipped gymnasium, under the guidance of a trained instructor, is good for any one, but that competitive athletics, requiring most strenuous exertion,

long and tedious training and self-denial, is positively bad for any one before full development, and that all such overacts tend to impair the keenness of the mind and interfere with school work proper, as well as to injure the body. The competitive interscholastic games which require great physical exertion and mental tension should be done away with and a good gymnasium, under the direction of one trained in physical culture, should be provided and work according to the condition and need of each pupil assigned.[1] We agree, further, that mild and well-timed athletic exercise and occasional social functions will tend to relieve the monotony of school life and invigorate body and mind; but overindulgence is likely to be detrimental.

The dangers referred to are not insignificant; they are real. Prof. C. R. Bardeen of the University of Wisconsin has pointed out, in connection with the participation in athletics in his institution, that the increasing amount of cardiovascular disease noted in this country by life-insurance companies and others makes it important for the physician to make himself acquainted with the chief causes responsible for these conditions so that he can protect his patients. Overexertion in competitive sports, especially in schoolboys, is one factor. From 5 to 10 per cent. of freshmen entering the state university have cardiac hypertrophy with dilatation attributable to athletic sports. While in most cases there is good compensation, in many there are mitral murmurs and a myocardial irritability which not only keeps these students out of college sports, but to some extent hampers their scholastic work in college. Practically all college students taking part in the major sports have hypertrophied hearts. While in many cases compensation is good, in a large number there is a myocardiac irritability, sometimes accompanied by mitral murmurs, which indicate somewhat serious lesions. In the past two years there have in addition been four cases of acute cardiac dilatation among the relatively few members of teams in the major sports to one case among the far greater number of students not members of teams. In the latter case the dilatation occurred while the student was running in the gymnasium.[2]

Criticisms of this sort are never welcomed when they contravene established customs. Yet there is an obvious contradiction in directing the energies and funds of the state toward the prevention of disease and the establishment of habits of right living in the earliest years of our public schools, only to permit their undoing at a subsequent period. School doctors and school nurses in the primary departments have come to stay for some time, at least. Why not more healthful school customs in later years?

1. Wright, Frank W.: A Plea for More Healthful School Customs, Bull. New Haven Board of Health, 1914, xli, No. 10.
2. Bardeen, C. W.: The Effect of Athletic Sports on the Heart, The Journal A. M. A., Nov. 1, 1913, p. 1657.

FOOT-AND-MOUTH DISEASE

In view of the recent outbreak of foot-and-mouth disease in the Mississippi Valley, the most extensive as yet in the United States, a brief consideration of the principal features of the disease may be of interest. It is an acute, highly infectious disease, which occurs chiefly in cattle, sheep, goats and swine, though other animals such as the horse and dog, as well as certain wild animals are attacked also, and it may affect human beings. In animals it is characterized especially by the eruption of vesicles in the mouth and on the feet, in some species more in the mouth, in others more on the feet. In cattle the incubation period averages from three to five days, whereupon a moderate fever with loss of appetite and other general symptoms sets in. In two or three days small blisters appear on the lining of the mouth, and now the fever usually subsides. At the same time one or more feet may show tenderness and swelling of the skin, soon vesicles form here also, and the animal goes lame. In the mouth the blisters may reach half an inch or more in diameter, but usually they are smaller; the contents, at first clear, become turbid, and as the covering bursts, small painful erosions are produced which either heal quite promptly or turn into ulcers that heal more slowly. Usually the milk is altered and reduced in quantity; blisters and ulcers may form on the udder. There is marked loss of weight, as the animals do not eat because of the pain. In this, the ordinary form, in which the death-rate is very small except among the young, the symptoms fade away in from ten to twenty days or so, except when complicating local secondary infections delay recovery, but there are also severe forms with extensive infection of the respiratory tract and gastro-intestinal inflammation, which frequently end in sudden death. In such severe cases ulcers are found in the stomach and intestines. In sheep and swine, lesions of the feet predominate. The disease is transmissible to the fetus in utero.

The cause of the disease is present in the contents of the vesicles, the discharges from the ulcers, the saliva, the milk, the urine and feces, but as a rule not after the tenth day. It is stated that animals having had the disease may carry the virus for months.[1] Any susceptible species may infect any other susceptible species. Infection occurs not only through direct contact, but also indirectly, as the virus retains its virulence for some little time, at least outside the body. Contamination of fodder, of stalls, of feeding and drinking troughs, of milk and milk products and of the hands and clothes of drovers serves to spread the disease, which often travels over wide stretches of country with remarkable rapidity, as shown by the present outbreak. As from 25 to 50 per cent. of the cattle exposed to infection may become sick, there

1. Moore: The Etiology of Infectious Diseases in Animals, 1906.

results great loss from fall in the production of milk, from reduction of vitality and fecundity, and from deaths as well as on account of the measures adopted to stamp out the epizootic.

The immunity produced by an attack seems to be feeble, as animals are said to suffer sometimes more than one attack within a short time. So far no practical method of protective inoculation has been developed.

Our knowledge of the cause of foot-and-mouth disease is limited to the fact that it concerns a filterable virus, as yet invisible and incultivable. It was in 1897 that Löffler and Frosch made their classical experiment, showing that the disease is caused by a living, proliferative virus that passes filters which do not permit bacteria to go through, an experiment that has served as a model for all the subsequent work on the many other forms of filterable virus recognized since then. Foot-and-mouth virus may remain active for months if kept cool and moist, but is destroyed rapidly by drying, by heat at 60 C. (140 F.) and above, by formaldehyd and by phenol (carbolic acid). The wide range of virulence of this virus among animal species has been indicated, and as stated, the disease may affect human beings, especially children, being transmitted by milk from diseased cows (experimentally verified) and by butter and cheese made from such milk as well as through wounds and in other ways. While the course usually is favorable, an epidemic described by Siegel had a mortality of 8 per cent. The manifestations are fever, digestive disturbances and vesicular eruption on the lips, the oropharyngeal lining ("aphthous fever") and sometimes on the skin. Where there is danger of contamination of the milk with the foot-and-mouth virus, thorough pasteurization of all milk and milk products is doubly indicated.[2]

THE ACTION OF IODIDS ON THE BLOOD-VESSELS AND HEART

Recently we commented[3] on the use of sodium as compared with potassium salts, and noted that in most cases potassium salts are given not for their potassium content but for the therapeutic effects produced by the negative or acid radical, as for instance in the case of acetates, tartrates, carbonates, bicarbonates, iodids, etc. We stated also that probably the corresponding sodium salts might prove equally and sometimes even more serviceable since the sodium ion has a less depressing action on the heart and central nervous system than has the potassium ion.

In the case of such salts as quinin arsenate[4] and ferric arsenate,[5] the reports of the Council on Pharmacy and Chemistry have emphasized that both the acid radical and the basic group are therapeutically active. Not enough of one of the constituents of these can be given without perhaps a dangerous overdose of the other constituent. In general, however, we are inclined to forget that in almost every salt the effects of both the kation or positive radical and the anion or acid radical must be considered. A new investigation of D. I. Macht[6] has an important bearing on this subject.

For some years the iodids, especially potassium iodid, have been credited with having a vasodilator or blood-pressure lowering action and have found extensive application in the treatment of arteriosclerosis. Aside from cases with a luetic basis, however, no satisfactory explanation of the supposed usefulness of the iodids in arteriosclerosis has been offered; in fact, many have doubted the value of the iodids in this condition.[7] The only experimental basis for the belief that iodids lower blood-pressure seems to have been chiefly animal experiments in which potassium iodid had been injected intravenously and in which the relative parts taken by the potassium and iodid ions were not differentiated. That the potassium ion when present in the blood even in weak concentration (0.08 per cent., for example) leads to an almost instant stoppage of the heart has been known for some time and has led to unwarranted fears of possible dangers from the oral administration of potassium salts; as a matter of fact, potassium leaves the blood so rapidly, passing to the tissues or being excreted by the kidneys that, provided the latter are efficient, there is little or no danger from the administration, by the mouth, of even very large doses of the potassium salts.[8]

Macht now reports careful experiments on the heart and blood-vessels in which the relative parts taken by the iodid radical and the other (basic) constituent of the salt were carefully differentiated. In some experiments the potassium chlorid of the nutrient fluid was replaced by potassium iodid or, if a greater concentration of iodid was desired, part of the sodium chlorid was replaced by an equivalent amount of sodium iodid. By such experiments the relative amounts of potassium, sodium, etc., remained unchanged and if the modified fluid had an action on the organs different from that of the original fluid, it was due to the presence of this iodid ion. Such experiments showed that the iodid ion instead of having a depressing action on the heart and vessels, as has been assumed, has a marked stimulating action. This

2. See Miscellany, "Foot and Mouth Disease," this issue, p. 1783.
3. Sodium versus Potassium Compounds, THE JOURNAL A. M. A., Sept. 19, 1914, p. 1034.
4. Quinin Arsenate Refused Recognition, THE JOURNAL A. M. A., July 16, 1910, p 235.
5. Rep. Coun. Pharm. and Chem., 1912, p. 30.
6. Macht, D. I.: Action of Potassium and Sodium Iodids and of Iodin Ion on the Heart and Blood-Vessels, Bull. Johns Hopkins Hosp., September, 1914; abstr., THE JOURNAL A. M. A., Oct. 10, 1914, p. 1325.
7. See for example the summary of the opinions of many prominent German clinicians as given by J. Schwalbe in the Deutsche medizinische Wochenschrift, 1914, Nos. 14 and 15.
8. Parenthetically it may be remarked that even the oral administration of large doses of potassium salts to patients suffering from severe nephritis must be regarded as distinctly dangerous and their use in intravenous or intraspinal injections in the doses in which sodium bromid, for example, has been used might prove fatal.

stimulating action, however, is somewhat inhibited by a combination of the iodin with the proteins of the blood. The sodium ion was found to have a slightly stimulating action, whereas the depressing action of the potassium ion was confirmed.

The action of the iodid ion on the heart and circulation, therefore, is that of stimulation. If an iodid has an action other than this it is due to the effect of the kation (potassium, etc.) with which the iodin is combined and should be attributed to it. The same effect may be obtained when this kation is combined with anions other than iodin. If conditions are such (intravenous injections, for example) that potassium iodid causes a fall of blood-pressure, this result is due solely to the potassium ion and could be equally well obtained with other potassium salts (potassium chlorid, for example).

Such analyses of the action of common drugs will do much to clarify and simplify our materia medica. While bromid is used in the form of its potassium, sodium, ammonium and even strontium, lithium, rubidium and cesium salt, investigation will no doubt show that one of these deserves general preference when bromid action is desired. Such experiments will also emphasize the unscientific character of many hodge-podge official and proprietary mixtures in which an assortment of metallic salts of a therapeutically active acid radical are combined and from which physicians are inclined to believe that they may obtain effects far beyond those obtainable from any single salt.

SIMPLE NITROGENOUS COMPOUNDS IN NUTRITION

Among the seemingly radical suggestions that have lately found expression in discussions on nutrition is that of the possible utilization of such simple compounds of nitrogen as urea and ammonium salts in the animal organism. Even the nitrates have been drawn into consideration in this respect. The entire subject, while by no means entirely new as a topic for experiment and speculation in physiology, has more recently provoked a lively controversy in which Abderhalden in Halle, Grafe in Heidelberg, and Underhill in New Haven — to mention only a few of the more prominent participants — have taken an active part.

At first thought, those who have not followed at close range the trend of current nutrition investigation might see in the attempt to attribute nutrient virtues to a waste product like urea a symptom of ridiculous presumption. Nowadays, however, science does not content itself with *a priori* indications or teleologic arguments. The truth needs to be demonstrated beyond the point of conjecture. To have insisted, a few years ago, on the preeminent importance of such simple protein derivatives as the amino-acids in the functions of nutrition would have seemed at that time like contending for something both improbable and contra-indicated. The day of demonstration had not yet arrived.

So it may seem now in the contemplation of the nutrient claims for simple nitrogen compounds of the sort enumerated above. There are several ways in which they may be assumed to behave in the organism. In the first and foremost instance they may serve as a pabulum for the alimentary bacteria, which in turn are destroyed in large numbers in the digestive tract and can furnish a yield of perfect protein synthesized from simple compounds like urea and the salts of ammonia. It is generally admitted that in certain species like the herbivora, in which bacterial processes have a free play in the gastro-intestinal tube, the contribution of dead bacterial bodies to the intake is by no means negligible. Small animals have actually been kept in nitrogenous equilibrium on a diet containing bacterial bodies or yeast cells as the sole source of protein in the food. The factor here referred to is one that is never easy to exclude in any discussion of nutritive values; yet it is not commonly taken into consideration.

The feeding of urea or ammonium salts might lead to an apparent nutritive advantage by depressing or inhibiting the usual breaking down of nitrogenous compounds in metabolism. This would accord with the belief that the products of cellular waste themselves tend to impede cellular metabolism. Now that the synthesis of amino-acids from ammonia and carbohydrates has been accomplished directly or indirectly in the laboratory, the possibility of a similar reaction in the body must be reckoned with. Finally, the alleged utilization of urea and other simple nitrogen derivatives may merely be an instance of unsuspected retention and delayed excretion. Even so soluble a salt as an iodid may not be entirely recovered in the excreta until several days after its administration has been stopped. Surely no one would look on the temporary deficit as an indication of nutritive "utilization" of the foreign salt.

There are, then, various alternative possibilities that must be reckoned with before we can proclaim unsuspected nutritive virtues for urea, nitrates, or other comparable simple derivatives. Foremost, undoubtedly, is the bacterial factor already described. This can be excluded only by avoiding the use of the alimentary tract itself. This prospect, involving prolonged parenteral nutrition, was not promising even in an experimental way until Henriques succeeded in devising an apparently effective mode of intravenous nutrition.[1] By this technic the Danish investigators have introduced urea and ammonium salts, with avoidance of the digestive tract, as the sole source of

1. Henriques, V., and Anderson, A. C.: Ztschr. f. physiol. Chem., 1913, lxxxviii, 357. See also Intravenous Nutrition, editorial, THE JOURNAL A. M. A., Jan. 31, 1914, p. 385.

nitrogen.[2] The outcome has been clearly negative in failing to indicate any permanent retention of nitrogen "fed" in this form and manner. One is constrained to believe, for the present, that the reputed success of others in feeding urea, etc., as sources of available nitrogen has been due to unsuspected temporary retentions or to the inevitable participation of bacteria in converting useless compounds of nitrogen into usable forms.

Current Comment

TEACHING SEX HYGIENE IN SCHOOLS

There has been considerable discussion on the question of teaching sex hygiene in the public schools. The advantage of increased knowledge for the children, as well as the practical difficulties of presenting this subject properly, have been commented on from various points of view. There has been little effort, however, to secure an expression of opinion from those vitally interested, namely, the parents and the children themselves. For this reason, the report of the Bureau of Research of the Upper Peninsula (Michigan) Educational Association, recently issued, is of interest. This bureau was organized to make a direct study of the schools of the Upper Peninsula of Michigan, their equipment and their methods and material for study. It is at present endeavoring to discover the points of strength and weakness of the schools, as judged by the parents and others interested in them. The report just issued is divided into four sections: moral education, physical education, industrial education and general. The basis for the report is the individual opinions of 317 representative citizens. Under the first head, among many other subjects discussed, the question was asked of parents, "Do you believe that sex hygiene should be taught in the schools?" To this question, ninety-two replied "yes," while 175 opposed such instruction; six made qualified replies. Commenting on these answers, the report says that the replies indicate that patrons of schools are not ready as yet to have sex hygiene taught in the schools. "Doubtless but few teachers are qualified to teach the subject well," says the report, "and to teach it poorly would be much worse than not to teach it at all." The bureau also endeavored to get the point of view of the pupil. At Houghton, two lectures on sex hygiene were given to boys and two to girls. Some time after the lectures, the boys and girls were segregated and were asked: "Did you learn anything of value at the last lecture on sex hygiene?" Ninety boys stated that they had learned something of value and eight that they had not, while fifty-four girls regarded the lecture as of value and twenty did not. When asked: "Do you favor another lecture?" eighty-five boys were in favor of further instruction and thirteen were opposed to it, while forty-four girls were in favor and thirty were opposed to the proposition. This report emphasizes the points which have been previously brought out; until we know what should be taught pupils at different ages, until we have formulated a definite graded course of instruction and have trained teachers to give this instruction, the proposition for teaching sex hygiene in the public schools should be approached with the utmost caution. In no case should an effort be made to force such instruction on the pupils or on the community. When the parents of children are convinced, by a large majority, of the advisability of such instruction, it should be provided. Premature efforts to place such subjects on the school curriculum in advance of public opinion can only cause misunderstanding and trouble.

GAS-PIPE THERAPY GETS A SETBACK

Since the days of Perkin's Metallic Tractors, no medical fraud of the drugless type has enjoyed greater vogue or swindled more people than those devices we have facetiously referred to under the term "Gas-Pipe Therapy." There are many of the gas-pipe frauds on the market. The original was the "Electropoise," devised by one Hercules Sanche, who later elaborated his device and sold it under the name "Oxydonor," having in the meantime persuaded a not-too-exacting patent office to grant him patent rights on the egregious humbug. So profitable, apparently, did the sale of this piece of fakishness prove that many imitations appeared. First, the "Oxygenor"; then, the "Oxygenator," the latter having its name changed later to the "Oxypathor." The "Oxytonor" and the "Oxybon" were still later modifications of the same scheme. Of these the Oxypathor (Oxygenator) has been the most extensively and elaborately exploited, and the extent to which the public has been defrauded has brought forth protests from various sources. The device itself consists essentially of a piece of nickel-plated tubing filled with inert material, sealed and having attached to each end a flexible cord with a garter-like attachment at the free ends. One garter is to be attached to the wrist and the other to the ankle of the person using the Oxypathor (Oxygenator). The gas-pipe itself is put in a bowl of cold water. According to the claims of the exploiters, the patient to whom the Oxypathor (Oxygenator) is attached, is made to absorb large quantities of oxygen through the skin. So absurdly fraudulent is the Oxypathor that the public in various parts of the world has been warned against it. The Australian government has debarred the thing from the Australian continent, while the committee appointed by the British Parliament to investigate medical frauds reported:

"Much fraud is also successfully practiced by the advertisement and sale of appliances, as alleged cures for many ailments . . . appliances alleged to supply oxygen (otherwise than by inspiration) such as the 'Oxydonor' and 'Oxygenator' are, of course, deliberate swindles, for the makers cannot be supposed to be as ignorant of chemistry and therapy as their victims."

Now comes word from Vermont that the United States government has successfully prosecuted E. L.

2. Henriques, V., and Anderson, A. C.: Ueber Stickstoffretentionen bei Zufuhr von Ammoniaksalzen oder Harnstoff. Durch Versuche mit permanent-intravenöser Injektion untersucht, Ztschr. f. physiol. Chem., 1914, xcii, 21.

Moses of Buffalo, N. Y., general manager of the Oxypathor concern. The trial, which was held in Rutland, Vermont, lasted over a week, and on Nov. 7, 1914, Moses was found guilty of using the mails to defraud. The scheme has been a profitable one. At the trial it was brought out that the Oxypathor costs $1.23; it sold for $35. Aside from the element of suggestion inseparable from the use of a mysterious, expensive-appearing and imposing-looking device, purchasers of the Oxypathor could have obtained just as valuable curative effects from an empty tomato tin with a string tied to it. As a therapeutic agent, the Oxypathor belongs in the same class as the left hind foot of a rabbit caught in a graveyard in the dark of the moon. Yet at the trial the exploiters of the Oxypathor were able to produce witnesses to testify to the curative value of their gas-pipe — and a few of the witnesses called themselves doctors! This exhibition of credulity — or, in the case of physicians, worse — is but another proof of the inherent worthlessness of testimonials. Imposing and convincing testimony would have been forthcoming long ago to prove the therapeutic efficiency of the rabbit's foot if some one had an exclusive proprietary interest in the sale of rabbit's feet.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

DISTRICT OF COLUMBIA

Personal.—Dr. William Browne Carr, Washington, has been appointed deputy coroner of the District, succeeding Dr. Charles S. White, resigned, to take effect, December 1.

Preparing Red Cross Hospital Site.—The demolishing of buildings on the Seventeenth Street site for the American Red Cross Hospital has commenced. The building to be erected is to be a national memorial to the women of the Civil War.

Examination of Police Surgeons.—On November 17 examinations will be held to form a list of eligibles for an appointment to the vacancy in the Board of Police Surgeons caused by the resignation of Dr. Edmund Barry, Washington, and the vacancy in the corps of medical inspectors in schools, caused by the resignation of Dr. Wilfred M. Barton. The health department announces that all who pass this examination are eligible for appointment as third assistant resident physicians at the Asylum Hospital and by law will advance after appointment one grade every four months, progressing through the Asylum Hospital, Home for the Aged and Infirm and the Tuberculosis Hospital. They then become eligible for appointment as resident physicians to the poor and later may be appointed inspectors of schools and then members of the Board of Police Surgeons.

FLORIDA

State Board News.—Dr. Joseph Y. Porter, Jacksonville, State Health Officer, has established a branch office at St. Augustine, with Dr. Maurice E. Heck in charge.——The State Board of Health is expending $20,000 for the erection of a laboratory in Jacksonville. The board has established a bacteriologic laboratory in the Hirschberg Building, Tallahassee.

Southern Health Exhibit.—Preliminary arrangements for the Southern Health Exhibit, to be held in Jacksonville in connection with the convention of the American Public Health Association the end of November and the first few days of December, are practically completed. Most of the larger cities of the South have arranged for their exhibits, and will furnish statistics and evidence of an educational nature to show the progress of health conditions in each community.

Hospital Corner-Stone Laid.—The corner-stone of the Pensacola Hospital was laid with fitting ceremonies, October 11. The building will cost about $400,000, will be five stories in height, with a frontage of 212 feet and a depth of 187 feet, and will contain accommodations for 100 patients. ——The Escambia County Medical Society gave a dinner to the Sisters of Charity at San Carlos Hospital, San Carlos, after the ceremonies, at which the Hon. W. A. Blount acted as toastmaster.

ILLINOIS

Meeting of the Federation of Charities.—At the meeting of the Illinois State Conference of Charities and Correction held at La Salle, October 24-28, Dr. George T. Palmer of Springfield was elected president. Danville was selected as the place for the next meeting.

Meeting of Illinois State Tuberculosis Association.—At the meeting of the Illinois State Association for the Prevention of Tuberculosis at La Salle, October 28, the attitude of Governor Dunne in placing the embargo against the importation of tuberculous cattle in Illinois was commended and the association pledged itself to the repeal of the Shurtleff law, which deprives cities of the right to require the tuberculin testing of dairy cattle. The following officers were elected: president, Dr. George T. Palmer, Springfield; vice-president, Dr. Charles W. Lillie, East St. Louis, and Dr. Samuel Dodds, Cairo; secretary, James Minnick, Chicago, reelected.

Chicago

German War Dinner.—The German Medical Society held a "War Dinner" at the Hotel LaSalle, October 24, at which Dr. Maximilian Herzog narrated his experiences in his recent trip to the war zone, and Dr. Paul Carus made an eloquent plea for peace.

Appreciation of Service.—At a largely attended dinner at the Sherman Hotel, Chicago, November 9, the Chicago Pathological Society presented Dr. George Howitt Weaver with an appropriate testimonial of its appreciation of his efficient services as secretary of the society for twenty consecutive years. Short addresses were made by Dr. J. B. Herrick, Dr. W. E. Quine and Dr. L. Hektoen; Dr. Weaver responded.

Lying-In Hospital Opens Pavilion.—The recently completed Mother's Aid Pavilion of the Chicago Lying-In Hospital was opened for inspection October 30, when a reception was tendered by the directors to nurses and physicians of Chicago. The pavilion is a four-story brick building constructed at a cost of $85,000 and has accommodations for thirty patients, one-third of whom will be charity cases. The hospital was opened to the public November 3.

INDIANA

Antituberculosis Society Organized.—Clark County Society for the Study and Prevention of Tuberculosis has been organized at Jeffersonville. The society will control the funds raised by the sale of Red Cross seals and expects to institute public nursing and medical inspection of schoolchildren.

Malpractice Suits Decided in Physicians' Favor.—In the malpractice suit brought by Harold Shana, Glenwood, for $15,000 against Drs. Hugh H. Elliott and Eli John Q. Paxton, both of Rushville, in which the plaintiff alleged that he had been treated for rheumatism when he really had a fracture, it was proved that the physicians had treated him for fracture and the suit was consequently decided in favor of the physicians. The father of the plaintiff sued the same physician a few weeks ago for $5,000 damages and the suit was decided against him.

Personal.—Major M. August W. Shockley, M. C., U. S. A., has been assigned as inspector and director of the National Guard of Indiana, Ohio, Kentucky, Michigan and West Virginia.——Dr. Charles A. Pfafflin, Indianapolis, has returned from abroad.——Dr. Marshall T. Shively, Marion, has resigned as a member of the board of public works on account of ill health.——Dr. Onis O. Melton, Hammond, who was operated on at the Augustina Hospital, Chicago, recently, has returned home convalescent.——Dr. Oscar E. McWilliams, Anderson, is reported to be ill at his home with pneumonia.

IOWA

Milk Laboratory Ready.—City Physician E. D. Middleton of Davenport announced on November 3, that the milk-testing

equipment, recently ordered, had been installed and was ready for the use of the public.

KANSAS

Personal.—Dr. H. Michener, Wichita, as the result of Roentgen-ray burns, had his ring finger amputated October 21. This is the second operation and it is probable that another finger will have to be removed.——Dr. Thomas C. Long, Independence, was seriously injured in an automobile accident near Independence, October 29.——Dr. John W. Hains, Kansas City, suffered a compound fracture of the right leg and internal injuries by the overturning of his automobile near Vance, November 2.

MARYLAND

Medical Librarian Appointed.—Mrs. Ruth Briscoe has been appointed librarian of the medical department of the University of Maryland, Baltimore. The library now contains more than 11,000 volumes.

Stamp Vending Profits to Tuberculosis Sufferers.—The Maryland Association for the Prevention and Relief of Tuberculosis, in order to raise funds for the support of its work, has adopted the sale of stamps by an automatic stamp vending machine, in which two 2-cent stamps are sold for 5 cents, the extra cent going to the relief fund of the association.

Personal.—Dr. John F. Spearman, formerly of Baltimore, is on duty with the German forces near Strasburg.——Dr. Veader N. Leonard, Baltimore, who left on the first Red Cross expedition, is on duty at a 300-bed war hospital at Paignton, New Devonshire.——Dr. Eleanor B. Wolf, Baltimore, has sailed for India where she will be a member of the medical staff of the Guntur Hospital.——Dr. Henry Key is reported to be seriously ill with double pneumonia at the Hotel Altamont, Baltimore.

Semi-Annual Meeting of Faculty.—The semi-annual meeting of the Medico-Chirurgical Faculty of Maryland was held October 28 and 29 at Upper Marlboro and addresses were made by Dr. Randolph Winslow, Baltimore, president of the faculty, and Dr. Henry B. McDonnell, College Park, president of the Prince Georges' County Medical Society. A tablet was erected to Dr. William Beans, one of the founders and organizers of the faculty. Public meetings and a health exhibit were held under the auspices of the public instruction committee of the faculty during the meeting.

Sanatorium Opened.—The Pine Bluff Sanatorium near Salisbury, Wicomico County, a state institution for the treatment of advanced and chronic tuberculosis cases, has been formally opened. Dr. George W. Todd is superintendent of the institution and a special feature of the treatment is the single apartment system for patients. The institution can now accommodate forty patients, but within the next year will double its capacity. Indigent persons suffering from tuberculosis are admitted to the institution without charge on certificate of a reputable practitioner.

Hopkins Physicians Honor Their Dead.—At the twenty-fifth anniversary of the Johns Hopkins Medical School, tablets set in the walls of the hospital were dedicated to the honored dead. One of these tablets was in memory of Dr. John Hewetson who was assistant resident physician at the hospital from 1890 to 1894. Another in the lobby of the main hospital building is inscribed with the name of the late Dr. D. C. Gilman, first president of the university, with that of Dr. James W. Lazear of yellow fever fame and with that of Dr. Rupert Norton who died a short time ago while assistant superintendent of the institution.

MASSACHUSETTS

Free Mental Clinics.—Members of the staff of the Northampton and Monson state hospitals will hold a free clinic at the Springfield Academy of Medicine, Wednesday afternoons from 2 to 5 o'clock, at which they will see persons suffering from nervous disorders, worry, anxiety, mental disorders, incipient or fully established mental diseases or epilepsy.

Mental Hygiene Society Opens Office.—The Massachusetts Society for Mental Hygiene has opened an office at Room 313, Ford Building, 15 Ashburton Place, Boston. The officers of the society are: the Hon. Harvey H. Baker, Boston, president; Dr. Walter E. Fernald, Waverly, vice-president; Dr. Charles E. Thompson, Gardner, secretary; John Koren, Boston, treasurer, and Dr. Frankwood E. Williams, formerly of Ann Arbor, Mich., first assistant physician at the Psychopathic Hospital, Boston, has been appointed executive secretary.

Hospitals for the Insane to Keep Physicians on the Premises Constantly.—The Massachusetts State Board of Insanity has voted that each private licensed hospital under the supervision of the board having five or more committed patients, beginning October 1, shall have a physician on the premises constantly, and that private licensed hospitals having less than five patients, committed or not, shall, from the same day, have a resident physician who shall see each patient at least once every day; also that no private hospital shall keep mental patients on the third floor of any building without special permission in writing from the State Board of Insanity.

Personal.—A banquet was given to Dr. Charles F. McCaffrey, Somerville, recently appointed medical examiner, by citizens of that city and after the banquet a fur coat was presented to Dr. McCaffrey on behalf of those present.——Dr. Allen J. McLaughlin, U. S. P. H. S., assumed the duties of his office as health commissioner of Massachusetts, November 2.——Drs. Ernest P. Miller and Bernard W. Carey, Fitchburg, have returned from abroad.——Dr. Theodore S. Bacon, Springfield, has resigned as associate district medical examiner.——Dr. Karl R. Bailey has been appointed bacteriologist to the Boston Health Department.——Dr. Henry P. Walcott, Boston, has been reappointed chairman of the Metropolitan Water and Sewerage Board.——Dr. Augustus L. Chase, Randolph, has been reappointed a member of the Board of Registration in Medicine.

MISSISSIPPI

Special Sanitary Officer Wanted.—As the result of the propaganda of the Pure Milk Committee of Forrest County, efforts are being made to secure a full-time health officer for the county at a salary of $1,800 per year.

Personal.—Dr. Walter H. Rowan, who resigned as State Sanitary Inspector, to take effect November 15, was presented with a gold watch fob by the members of the Mississippi Public Health Association at its meeting in Jackson, October 28. Dr. Rowan has been appointed chief sanitary officer of the Republic of Costa Rica, and will also work under the auspices of the Rockefeller Foundation.——Dr. Willis Walley, Richton, has been appointed state sanitary inspector in place of Dr. Rowan.

MISSOURI

Personal.—Dr. Daniel R. Hill, commissioner of health and sanitation of Joplin, has been chosen chairman of the Joplin Board of Health, and Dr. Alonzo L. Carpenter, city physician, has been elected secretary.——Dr. William Boyd Hight, Queen City, was seriously injured by the overturning of his automobile, October 19.

St. Louis

Appointments of City Hospital.—Director of Public Welfare Tolkacz has announced 133 appointments on the visiting staff of the St. Louis City Hospital and municipal institutions, October 30. The appointments are divided into three classes: the first is composed of the nominees by the Washington University; the second nominees by St. Louis University, and the third nominees by the National University and appointments without regard to university connection.

Hospital Dedication.—The Barnes Hospital, erected and equipped under the terms of the will of the late Robert A. Barnes, who bequeathed $1,000,000 for its purpose, the balance of his estate being held as an endowment, was dedicated with impressive ceremonies, October 27. The dedicatory address was made by Bishop Hendricks of the Methodist Episcopal Church, South, who also unveiled a bronze bust of Robert A. Barnes. Washington University, with which the hospital is affiliated, was represented by its president and by Dr. George Dock, medical director.

NEW JERSEY

Personal.—Dr. Alonzo L. Leach has been elected president and Dr. Virgil M. D. Marcy, Jr., health inspector of the Cape May Board of Health.

NEW YORK

Medical Clubhouse Opened.—The Rochester Medical Society opened its new clubhouse for public inspection, November 4, and held an informal reception from 4 in the afternoon

until 10 in the evening. The building is in colonial style and accommodates a medical library, a dining-room, an assembly room for the society and one for the Blackwell Medical Society. The property was purchased in June for $35,000 and the building has been remodeled and fitted for its present uses.

Quarantine Against Foot-and-Mouth Disease.—An order quarantining New York state against foot-and-mouth disease was issued on November 7 by the commissioner of agriculture, to become effective November 9. Another order prohibits the transportation of cattle from Canada into this state and another will forbid the feeding of skimmed milk and whey to calves and pigs in districts in which the disease exists. The quarantine will mean that there can be no movement of animals from one county to another until the animals have been inspected and a permit issued.

Health Exhibits at State Fair.—During August and September the State Department of Health had exhibits at fifty-three county fairs and 575,000 people had the opportunity of seeing them. In addition to these fairs the exhibits have been shown at the state fair, Syracuse and the Rochester Industrial Exposition, which have a combined attendance of 750,000. Five child welfare and three rural sanitation exhibits have been used at these fairs and the routes have extended from the St. Lawrence to Rockland county and as far west as Chautaqua and Niagara counties. The interest in the child welfare campaign has been extended to the county fairs and many more requests for the exhibits were made than could be granted.

Personal.—A reception was given at the Adirondack Cottage Sanatorium, Saranac Lake, October 28, for Dr. and Mrs. Francis B. Trudeau, Dr. and Mrs. M. Lawrason Brown, and Dr. and Mrs. Frederick H. C. Heise.——Dr. Regina Flood Keyes, Buffalo, sailed from New York, October 31, to join the staff of the American Ambulance Hospital, Paris.——Dr. Charles C. Kimball has been appointed a member of the board of health of Watertown, vice Dr. Olmsby O. Stowell, resigned after serving as a member of the board for fourteen years and as its president for seven years.——Dr. John L. Heffron, dean of the College of Medicine of Syracuse University, has been appointed a member of the advisory medical council of the state university for a term of five years.——Dr. Frederick Luke Classen has been appointed attending physician in connection with the state insurance fund of the compensation department with office at Albany.

New York City

New Clinic for Cripples Opened.—The new dispensary in connection with the Hospital for Deformities and Joint Diseases, of which Dr. Henry W. Frauenthal is surgeon in chief, was dedicated on November 3. The new dispensary is a six-story building which with its site cost $130,000, of which amount all but about $10,000 has been paid. A gift of $1,000 from the Young Ladies' and Gentlemen's League was announced at the dedication. Among those who made addresses on this occasion were Dr. Abraham Jacobi and Dr. Katherine Davis.

Gift to University.—A gift of $113,750 from William K. Vanderbilt has enabled Columbia University to take title to the north half of the block bounded by 116th and 117th streets, Amsterdam Avenue and Morningside Drive. This property was acquired as a site for the new medical school, but the amalgamation of the College of Physicians and Surgeons and the Presbyterian Hospital has so modified the plans of the medical school that it has been decided to await further developments. The site is now occupied by the temporary building which houses the Crocker Research Laboratory.

Revising the Sanitary Code.—A letter has been addressed by the commissioner of health to each member of the advisory council and the medical advisory board announcing that a general revision of the sanitary code has been undertaken, with the purpose of bringing the code into conformity with the great body of municipal ordinances recently remodeled by the codification committee of the board of aldermen. It is pointed out that this occasion affords an opportunity for improving the code by the redrafting of existing sections, by the omission of superfluous contents, and by the inclusion of desirable new matter.

Society for Clinical Study.—The annual meeting of "The Society for the Advancement of Clinical Study" of New York City, will be held at the Academy of Medicine, 17 West Forty-Third Street, on Wednesday afternoon, November 18, at 5 p. m. This society, organized for the purpose of maintaining a bureau of information, will furnish to resident and visiting physicians definite information regarding the clinical facilities of the hospitals and laboratories of the city of New York. A bulletin board has been installed at the Academy of Medicine in charge of a special clerk, and on this all hospital clinics, both medical and surgical, are posted daily.

New Appointments at Columbia University.—It has been announced that clinical instruction for the medical students of the College of Physicians and Surgeons is hereafter to be provided at the Montefiore Home and to carry on this instruction the following appointments have been made: Dr. Siegfried Wachsmann, Berlin, professor of clinical medicine; Drs. George L. LaPorte and Simon Philip Goodhart, assistant professors of clinical medicine; instructors in laryngology, Dr. Arthur P. Goll and Dr. John Leshure. Dr. Warfield T. Longcope was appointed to serve as a member on the board of managers of the George Crocker Special Research Fund.

Enforcing the New Milk Regulations.—During September eighty dairies were excluded from business in this city for failure to comply with the minimum requirements for the production of Grade "C" milk. Shipments from four creameries were ordered degraded from Grade "B" to Grade "C," as the bacterial content of the milk shipped from two of these creameries was found to be continually excessive, and the other two were ordered degraded because of improper pasteurizing apparatus. Samples for bacterial examination were taken at forty-four pasteurizing stations during the month. Their examination showed that the process of pasteurization was conducted in a very satisfactory manner, and that in all but nine the regulations were being closely followed. Eleven new pasteurizing plants have been approved during the month. Nearly 24,000 specimens of milk as offered for sale in the city were examined and of this number only sixty-three were found to be above the maximum temperature permitted by the department's regulations. In addition 579 samples of raw milk were taken and on chemical analysis ninety-nine were found to be below the standard.

Personal.—Dr. H. McDonald Peggs has gone to Europe to make a reconnoissance in the war zone for the British Imperial Club. He goes first to England and then to the front to learn what surgeons, nurses and supplies are needed. The club will send what is recommended. Dr. Peggs then expects to work in the British hospital corps.——Dr. John Ravenswood Hicks, New Brighton, has accepted Dr. Hermann M. Biggs' request to help organize local health work on such lines as promise a maximum return for a given amount of money expended. Dr. Biggs believes that before such an adjustment can be effected it will be necessary to secure some uniformity in health department accounting, so that the expenditures for various purposes in various communities may be fairly compared.——Dr. E. C. Baldwin of Ft. Wadsworth, bacteriologist and director of the old laboratory at the Quarantine Station, has resigned in favor of Dr. Oscar Teague, recently of Cornell.——Dr. William E. West was seriously injured in a collision between his touring car and an Erie train at a grade crossing near West Haverstraw, N. Y., November 2.——Dr. John Herman Branth and family narrowly escaped death in the burning of his gasoline launch in the Hudson River, October 19.

OHIO

Small-Pox on Ore Steamer.—The steamer *William P. Palmer* left Conneaut on October 17 for Duluth. One of the crew left behind at Conneaut developed small-pox the same day. The remainder of the crew were vaccinated at Duluth and the cabin in which the patient had slept was disinfected. On the return of the steamer to Conneaut, October 25, she was placed in the hands of the State Board of Health by her owners, the Pittsburgh Steamship Company. Permission was given to unload her cargo. The crew was then revaccinated and the steamer laid up at the dock with sanitary policemen to prevent the crew from leaving. No further cases of small-pox have developed and the period of quarantine expires shortly.

Conference of State with Local Boards of Health.—The fortieth conference of the State Board of Health with representatives of local boards of health was held in Cincinnati on Oct. 22-23, 1914. The attendance at the three sessions averaged about 250. The first session was devoted to a discussion on rural hygiene. Mr. John W. Hill, president of the state board, spoke of measures to prevent stream pollution. The chief engineer dealt with public improvements in

villages from the standpoint of the sanitarian, and Dr. Paterson and Miss Britton discussed various phases of public health nursing. The evening session was devoted to illustrated lectures by Drs. Emery R. Hayhurst and Frank G. Boudreau, Columbus, on occupational diseases and communicable diseases, respectively. The third and final session was devoted to a discussion of model rules and regulations for villages and townships, rural school sanitation, and the relation of the rural health officer to his city brother. Dr. Eugene F. McCampbell, secretary and executive officer of the board, brought the session to a close by his discussion of proposed public health legislation. The most important measure he discussed was that dividing the state in large health units, each under the care of a full-time trained health officer.

Cincinnati

Work Cure for Convalescents.—The Cincinnati Hospital Board has adopted the work cure for convalescents and work rooms will be established as soon as the institution is opened. Among the work to be inagurated will be basket weaving and rug making.

Personal.—Dr. Arthur C. Bachmeyer, superintendent of the Municipal Tuberculosis Sanatorium, has been appointed superintendent of the Cincinnati General Hospital, succeeding Dr. Charles F. Sanborn, resigned.——Dr. Walter E. List retains his post as assistant superintendent of the hospital and Dr. Harry Freudenberger has been appointed assistant in charge of the Tuberculosis Sanatorium.

Holmes Honored by Staff.—At a meeting of the staff of the Cincinnati General Hospital, October 29, resolutions were unanimously adopted approving of the new Cincinnati General Hospital and recognizing the faithfulness, efficiency and self-sacrificing devotion of Dr. Christian R. Holmes, "the one man chiefly instrumental in bringing the construction of the institution to a successful conclusion."

New Hospital Plans.—In accordance with the plans of the mayor and Dr. Christian R. Holmes, safety director, the Tuberculosis Sanatorium and General Hospital will be placed under one head who will receive a salary of $5,000 a year. Each hospital will have an assistant superintendent with a salary of $2,000 a year and the payroll of the General Hospital will amount to about $150,000. It is expected that the hospital will be ready for opening January 1.

PENNSYLVANIA

County Medical Society Building.—Plans have been completed for the new building of the Luzerne County Medical Society, and work has already begun. It is a fireproof structure of brick and stone, and will cost about $20,000.

Personal.—Dr. Robert G. Boak, Newcastle, was seriously injured in a collision between his automobile and the upright supports of a railroad crossing.——Dr. William D. Danner, Glenville, who was operated on October 10 at the West Side Sanitarium, York, returned home convalescent a week later. ——Dr. Henry J. Benz has succeeded Dr. Henry B. Burns as superintendent of the Bureau of Child Welfare of Pittsburgh. ——Dr. Harry W. Salus, Johnstown, has been appointed state medical inspector for Cambria County in the Department of Labor and Industry.

Scarlet Fever, Diphtheria and Typhoid.—Between October 1 and 29, 241 cases of scarlet fever were reported in Pittsburgh. Twenty-seven cases of virulent scarlet fever with three deaths are reported from Donora, Washington County, and twenty-five cases from Blue Ball, Lancaster County. Schools have been closed at Confluence, Somerset County, and New Florence, Westmoreland County, on account of scarlet fever. In Pittsburgh, 120 cases of diphtheria were under quarantine October 29. The Pittsburgh Department of Public Health has been distributing antitoxin at low prices. Since the first of the year, 23,718,000 units of antitoxin have been distributed at a cost of almost $10,000. In Monessen, Westmoreland County, fifty-nine cases of typhoid were reported October 29.

Philadelphia

Society Anniversary.—The Philadelphia Neurological Society announces that it will celebrate the thirtieth anniversary of its foundation by holding a special scientific meeting on November 27, followed by a banquet on November 28.

Meat Laws Affected.—Several new regulations relative to the sale of meats have recently become effective, the most important of which is the rule which governs the sale of meat of animals affected with disease. The parts not affected may be sold only after a process of sterilization and cooking and canning and marked "Second class meat, sterilized."

The Alvarenga Prize: Correction.—In a notice sent by the College of Physicians and Surgeons of Philadelphia regarding the award of the Alvarenga prize, which appeared in THE JOURNAL of November 7, page 1680, the title of the essay for which Dr. Herman B. Sheffield was awarded the prize, should have been "Idiocy and Allied Mental Deficiencies in Infancy and Early Childhood."

Stockyards Under Quarantine.—As a preventative measure against the spread of foot-and-mouth disease among cattle, a quarantine was placed November 7 on the stockyards. While the disease had not appeared among the cattle there, the animals on hand came from Chicago and other infected districts. On November 9 inspectors made a canvass of all farms within a 10-mile radius of the city.

Police Orders to Aid Sick.—Among the new orders issued to the police are regulations requiring that women accompanied by babies or small children be sent in patrol wagons to the city hall or county prison and not in police vans, that a physician accompany a woman removed from her home to the police station and a hospital in a patrol wagon and that a police matron be sent with abandoned infants who are removed to the Philadelphia Hospital.

Personal.—A smoker was given by the Philadelphia County Medical Society at the University Club on October 28, in honor of Dr. John B. Deaver.——On the occasion of the seventy-eighth birthday of Dr. Daniel Baugh, October 22, the medical and legal professions of the city joined in doing honor to the founder of the Daniel Baugh Institution of Anatomy. Practically the entire faculty of the Jefferson Medical College and the entire staff of the Jefferson Hospital were present.——Dr. Charles J. Hatfield has been elected executive secretary of the National Association for the Study and Prevention of Tuberculosis to succeed Dr. Livingston Farrand, New York, resigned.——Dr. Frank H. Hustead has been elected surgeon-general to the Association of Soldiers of Foreign Service of the United States.——Dr. William Penn Vail was elected by the Philadelphia County Medical Society to fill the unexpired term of assistant secretary of the board of directors, vice Dr. Arthur H. Hopkins, resigned.

RHODE ISLAND

Dr. Peters' Work Recognized.—In recognition of the twenty-five years of service as superintendent of the Rhode Island Hospital of Dr. John M. Peters, nearly two hundred physicians of the state gathered at the Turks' Head Club, Providence, October 28, at a dinner in honor of Dr. Peters. Dr. G. Alder Blumer, superintendent of Butler Hospital, officiated as toastmaster. Addresses were made by Dr. Herbert B. Howard, superintendent of the Peter Bent Brigham Hospital, Boston; Hon. Charles C. Mumford, who spoke in behalf of the trustees and the general community, and Dr. Jacob C. Rutherford, who on behalf of the medical profession of the state, presented Dr. Peters with a gold watch and chain.

VIRGINIA

Personal.—The home of Dr. Samuel H. Price, Montvale, was destroyed by fire, October 16, with a loss of about $8,000, partially covered by insurance.——Former President S. C. Mitchell of the Medical College of Virginia, Richmond, delivered the principal address at the anniversary of the surrender of Yorktown, October 20.

Tuberculosis Camp Without Funds.—The management of the Pine Camp Tuberculosis Hospital announces that unless the city of Richmond takes over the management of the institution, it will be necessary to close it this month, and the thirty-six patients in an advanced state of tuberculosis will either be left destitute or must be cared for by some other charity.

Alumni Association Organized.—A University of Virginia Alumni Association has been recently organized to bring together the alumni of the university and to further the interests of the school in the South. The following officers have been elected: Dr. Hugh H. Young, Baltimore, president; Dr. John Staige Davis, University, vice-president; Dr. Seale Harris, Mobile, Ala., secretary; Dr. Thomas V. Williamson, Norfolk, treasurer.

Malarial Survey of the State.—Surgeon Rudolph H. von Ezdorf, U. S. Public Health Service, has completed a malarial survey of Virginia, and reports that he has located breeding places of the malarial mosquito and has taken steps

toward their eradication. The next step of the work is the determination of how many people are carrying malaria in their blood, while the third part of the work is educational. The State Board of Health proposes to do a considerable amount of educational and eradicatory work during the year.

State Society Meeting.—The Medical Society of Virginia held its forty-fifth annual meeting in Washington, D. C., October 27 to 29, under the presidency of Dr. Stephen Harnsberger, Catlett. Dr. Harnsberger and Surgeon-General William Crawford Gorgas, M.C., U. S. Army, were elected honorary members of the society, and the following officers were elected: president, Dr. Samuel Lile, Lynchburg; vice-presidents, Drs. Samuel B. Moore, Alexandria; Joseph T. Buxton, Newport News, and John W. Preston, Roanoke; secretary, Dr. Paulus A. Irving, Farmville (reelected); treasurer, Dr. Mark W. Peyser, Richmond (reelected); delegate to the American Medical Association, Dr. Robert C. Bryan, Richmond, and alternate, Dr. Sparrell S. Gale, Roanoke. Richmond was selected as the next meeting place.

GENERAL

Tri-State Physicians to Meet.—The Tri-State Medical Association of Virginia and the Carolinas will hold its seventeenth annual meeting at Charleston, Feb. 17 and 18, 1915, under the presidency of Dr. Edward C. Register, Charlotte, N. C.

Ohio Valley Physicians Hold Meeting.—At the sixteenth annual meeting of the Ohio Valley Medical Association held in Evansville, Ind., November 4 and 5, the following officers were elected: president, Dr. E. Otis Smith, Cincinnati; vice-presidents, Drs. George M. Young, Evansville; William Shimer, Indianapolis, and William M. Harsha, Chicago; secretary-treasurer, Dr. Benjamin L. W. Floyd, Evansville (reelected).

Bequests and Donations.—The following bequests and donations have recently been announced:

The Sisters of Charity (colored), of Indianapolis, have raised nearly $10,000 for the purchase of property on which a hospital is to be erected for the exclusive use of colored people.

Jewish Hospital, Pennsylvania Institution for the Instruction of the Blind, Wills Eye Hospital, Pennsylvania Hospital, and Presbyterian Hospital, Philadelphia, each $5,000 by the will of Henry B. Palethorp.

University of Pennsylvania, $50,000; Hospital of the Protestant Episcopal Church, Philadelphia, $10,000; Children's Aid Society, Philadelphia, $10,000; and Pennsylvania Prison Society, Philadelphia, $10,000, by the will of Miss Anna M. Blanchard.

German Society, $5,000, for the endowment of a free bed in the German Hospital, by the will of William Lutz.

First-Aid Cars.—Dr. Matthew J. Shields, Scranton, Pa., one of the staff of the American Red Cross Aid Department, with First-Aid Car Number 3, arrived at the Terminal, Washington, D. C., November 4, and lectured on November 5 in the car to the employees of the Washington Terminal Company on "Accident Prevention and First Aid." The car was then taken to Richmond, Va., where Dr. Shields lectured, November 6. First-Aid Cars Numbers 1 and 2 are touring the United States the year round, giving free lectures to workman in shops, factories, mines, etc., on "Accident Prevention and First-Aid Methods."

To Reduce Death in Mines.—As the result of a report by the committee of physicians, consisting of Dr. Walter B. Cannon, Harvard University, chairman; Drs. George W. Crile, Cleveland; Joseph Erlanger, St. Louis; Dr. Yandell Henderson, Yale University, and Dr. S. J. Meltzer, Rockefeller Institute for Medical Research, recommendations have been made by the Bureau of Mines regarding methods used by miners in resuscitating fellow workmen overcome by electric shock or gases in places that cannot easily be reached by physicians. These recommendations applied equally well to individuals suffering from the effects of illuminating gas poisoning or electric shock.

Holiday Gifts for Culion Lepers Requested.—Dr. Victor G. Heiser, United States Director of Health in the Philippines, suggests that Americans send some little kindly token of sympathy next Christmas to the Culion lepers. Readers who wish to remember the lepers should do so at once, because it requires several weeks to reach the Culion leper station. Send prepaid parcels, checks or money orders to Mr. Fleming H. Revell, 158 Fifth Avenue, New York City, treasurer of the U. S. A. Committee, the Mission of Lepers, who has consented to receive and forward all gifts. All parcels should be securely wrapped, marked and addressed, also bearing the name of the sender.

Red Cross Work in France.—Following up its recent donation of $25,000 to the American Ambulance Hospital, Paris, the American Red Cross has asked Ambassador Herrick if he will receive $10,000 to be used at his discretion in furnishing surgeons, nurses, supplies, or whatever is most needed in Vierzon, Dinard, Dieppe and Pau, from which points appeals for assistance have come. It is said that there are 1,200 gravely wounded French and German soldiers in Vierzon, and at Boulogne there are 400 wounded lying on straw, with only one surgeon, an American, to attend them.——The American Red Cross arranged on November 4 to ship 5,000 heavy blankets to distressed non-combatants in Belgium.

The Foot-and-Mouth Epizootic.—The Chicago stockyards were closed for a ten-day period at the end of the day, November 5, by the Illinois Live Stock Commission in the attempt to check the epidemic of foot-and-mouth disease now affecting six states. No cattle will be permitted to be shipped to or from the yards. Cattle already shipped from the uninfected areas which reached the yards by 5 p. m. November 5 were to be admitted, but after that hour none were to be received until the yards and buildings had been thoroughly fumigated and disinfected and the quarantine lifted. The stockyards of Buffalo, New York and Indianapolis have been quarantined and New York, Maryland, Indiana, Michigan, Illinois, Pennsylvania, Wisconsin and Ohio and other states have also been quarantined by the federal authorities. Interstate shipments of cattle, sheep and swine are prohibited from the states now quarantined. The United States Department of Agriculture has pronounced the epidemic the most virulent and dangerous the country has ever experienced. It is probable that Congress will be asked for an appropriation to suppress the disease.

The Small-Pox Situation in the Middle West.—Under the policy of resistance by the Dowieite community in Zion City, Ill., to the efforts of the Illinois State Board of Health, the number of cases of small-pox in that place has increased to nearly fifty. November 3 the overseer of the community under protest consented to allow the state authorities to take charge of the situation. Dr. C. E. Crawford, medical inspector for the Illinois State Board of Health, at once instituted a rigid quarantine on the premises of all persons affected with small-pox and appointed six deputy inspectors to assist him in maintaining quarantine. He also prohibited all public gatherings, canvassing from house to house, and ordered all children under 16 years of age to remain at home. All the inhabitants who are willing are being vaccinated. Under the law the Illinois State Board of Health has no power to compel vaccination. The surrounding towns have already declared a rigid quarantine against Zion City. Some manufacturing establishments in Waukegan, Ill., have been closed down on account of the threatened spread of the disease. The number of cases at Neponset, Ill., has increased to thirty, and schools and churches have been compelled to close temporarily.——Forty cases of small-pox were reported from Whiting, Ind., November 2. The health authorities are said to have the situation in hand now. Fifty cases are reported from Cromwell, Noble County, Ind., by J. W. Moore, county health officer.——Forty-four cases of small-pox were reported in Milwaukee, Wis., October 28, and the commissioner of health believes that many cases of the disease in mild form have not been reported.——There have been six cases in Battle Creek, Mich. Cases are also reported from Allegan, Mich. Nineteen cases of mild small-pox, at first diagnosed as chicken-pox, are reported from Manistee County, Michigan, near Kaleva. Two schools have been closed and an area of 10 square miles is under quarantine. Six cases are reported from Escanaba, Mich., and nearly twenty cases from Alamo, Mich. The disease throughout the West seems to be present in a mild form.

WAR NOTES

Cholera in Galicia.—It was officially announced in Vienna, November 6, that there are 256 cases of cholera in Galicia of which 126 are reported from Przemysl.

American Surgeons Appreciated.—A dispatch from London states that the American hospitals at Gleiwitz and Cassel are doing such satisfactory work that the government is about to request that three more American surgeons be sent to Germany.

Aid for Non-Combatants.—In addition to the supplies sent to Belgium, which were noted in THE JOURNAL of last week, the American National Red Cross has cabled $10,000 to Minister Van Dyke at the Hague for Belgium refugees in Holland and has also sent a number of boxes of clothing for women and children and 500 pairs of blankets.

Mikado Gives Money for Hospital.—Emperor Yoshihito has given $25,000 toward the foundation of St. Luke's International Hospital, Tokyo, to be conducted under the auspices of the Protestant Episcopal Church. The institution is to be the most elaborate in the far east and will cost about one-half million dollars. The substantial imperial support will, it is believed, assure the success of the enterprise.

More Medical Aid from the United States.—Mrs. Harry Payne Whitney sailed for Europe on the *Lusitania* November 4, with a staff of four surgeons and fifteen trained nurses to establish a field hospital in northern France. Ten motor ambulances and a large quantity of medical supplies and clothing sufficient for 3,000 men, women and children were shipped to France by Mrs. Whitney, October 31. The surgeons who accompanied Mrs. Whitney are Drs. Walton Martin, New York City, in charge of the field organization; Drs. Karl Connell and Donald Gordon, New York City; Dr. W. E. Drennan, Birmingham, Ala.

Prize Given for Relief Work.—The Société Médicale des Hôpitaux de Paris appointed last summer a delegate to the sixth congress of the Association of French-Speaking Physicians in North America, which was announced to be held at Quebec, August 31 to September 3. At the same time it notified the association that it would give a prize of $200 for the best paper read at the meeting. In acknowledging this courtesy the executive committee, writing August 2, expressed their appreciation but said that as the cable had just brought word that war was declared in Europe they suggested that the munificent offer for a prize be devoted instead to the relief of the wounded in the war. This has been done, the society turning over to the fund for the aid of the wounded five-fold the amount designated for the prize.

PARIS LETTER

PARIS, Oct. 22, 1914.

Hygiene in War

At the last meeting of the Parisian section of the Association générale des hygiénistes et techniciens municipaux, Dr. Frederic Bordas, temporary professor at the Collège de France, suggested a number of ingenious devices for use in war time.

It is not always easy to procure hot water for baths, dressings or hot drinks in a temporary hospital. In the country, one may take one of those steam engines used to supply power on farms. The steam from the generator is turned with free escapement into a barrel or other water-container and in a few minutes the temperature of the water is raised to the boiling-point. This sterilized water may be used for washing wounds or for drinking. When the temporary hospital is near a factory, a jet of steam from the boiler will answer the same purpose.

To protect soldiers from the cold, the Japanese, during the war in Manchuria, used paper clothes made from rice-straw or bamboo. This paper, though proportionately expensive, gives very good results. Equally good results have been obtained from wrapping-paper rendered impermeable by being lightly greased with liquid petrolatum and used as an interlining between two layers of cloth.

The secretary of the Association des Hygiénistes et techniciens municipaux, M. Samuel Bruère, chemist of the laboratory of toxicology, recommends, for the sterilization of the soldier's drinking-water, to be done by the soldier himself, the use of: (1) 0.25 gm. tablets of calcium glycerophosphate and potassium phosphate with 7 mg. of potassium permanganate; (2) tablets of 0.5 gm. of citric acid with the precise quantity of sodium hypophosphite to reduce the excess of permanganate. Each soldier could easily be supplied with a little box or metal case containing a certain number of these tablets and thus could himself sterilize the amount of water he needs for his own use. In each liter (quart) he would drop a pink tablet (potassium permanganate) then five minutes afterward a white tablet (sodium hypophosphite). Numerous practical trials with yellow and turbid Seine water have proved that a dose of 7 mg. of potassium permanganate per liter in contact for five minutes in the presence of calcium glycerophosphate is sufficient to eliminate the colon bacillus. At the end of five minutes, the addition of the second (hypophosphite) tablet reduces the excess of permanganate in nine or ten minutes. From violet the water becomes citron yellow. A little while later it loses color. At the end of ten more minutes, the color is hardly perceptible, and it disappears completely in twenty minutes, leaving no trace of the yellowish color of the untreated water. The treatment requires altogether not more than twenty-five or thirty minutes.

A New Military Hospital in Paris

The Grand-Palais is now used by the military health service, which has established there a hospital remarkable for the vast extent which it occupies and for its situation, one of the most attractive in Paris. The hospital was opened October 13 by Dr. Février, director of the military health service. With the aid of M. Deglane, architect of the Grand-Palais, the immense exposition galleries have been rapidly transformed into hospital wards at slight expense. The hospital has 1,200 beds and receives convalescents especially. Some wards have been furnished by the French Red Cross, others by the proprietors of some large mercantile establishments in Paris and others with material belonging to the military health service.

The Blue Cross

Mme. Millerand, wife of the minister of war, has just accepted the presidency of a new society, the Blue Cross, organized on the model of the British Blue Cross, for the purpose of collecting from the battlefields and caring for wounded horses from which more service may be expected and which would otherwise die slowly of their wounds and of hunger where they have fallen. Eight Blue Cross ambulances are already operating at the front. They have been able to save many horses, a number of which have gone back to their regiments.

Measures Against Infectious Diseases in Algeria

Exceptional measures have just been decreed against epidemic and infectious diseases in Algeria. Not only physicians, but also heads of families and lodgers are bound to report to the mayor any case of infectious disease coming to their knowledge. The mayor is to report such cases to the local sanitary authorities.

The University of Aix Offers Hospitality to the Belgian Universities

At a meeting held at the Aix city hall, presided over by the mayor and university authorities, it was unanimously decided to make an official offer to the Belgian government to receive the Belgian universities, both professors and students, at the University of Aix. The city will defray the expenses of the students' lodging. The university will request that our minister of public construction permit the Belgians to receive instruction free and allow the University of Aix-Marseilles to confer French university degrees on the Belgian students.

Bureau of Chemical Products

A temporary bureau of chemical and pharmaceutical products has just been created to last during the war. Its function is to cooperate with our manufacturers with regard to production and distribution. It will investigate supplies, gather figures on our exact present capacity for production, develop production as much as possible to meet the needs of the civil population and, so far as possible, the needs of the allies. It will also attempt to establish in France the manufacture of products which hitherto have been monopolized by foreign countries. The bureau will be a division of the Department of Commerce, and its head will be M. Behal, professor at the Ecole supérieure de pharmacie de Paris and a member of the Académie de médecine.

Prohibition of Alcoholic Drinks

I mentioned in a previous letter (THE JOURNAL, Sept. 19, 1914, p. 1044), the prohibition of the sale of absinthe in drinking shops. This prohibition has been extended to apply to drinks similar to absinthe, that is, to bitters and all *apéritives* except those with a wine base. This measure applies to all France. Some military commanders have, in addition, taken such local measures as the closing of drinking-shops, the prohibition of the sale of alcohol in certain places, or the strict regulation of hours of closing. All these measures have already given good results with respect to the habits, behavior and health of the population. It is to be hoped that the new habits contracted during war may have an influence in suppressing the scourge of alcoholism.

The Soldiers' March

Dr. L. Manouvrier, professor at the Ecole d'anthropologie de Paris, at one of the last sessions of the Académie des sciences, read a paper on the grouping of marching soldiers, not according to their height but according to the length of the leg, measured from the great trochanter to the ground. When the soldiers with the shortest legs are put in front, the troop marches most regularly and with a minimum of fatigue.

Marriages

ROBERT MORTON WOLFE, M.D., Port Carbon, Pa., to Miss Cora M. Bagenstose of Shoemakersville, Pa., at Philadelphia, October 3.

WILLIAM GRAVES PHILLIPS, M.D., Helena, Ky., to Miss Elizabeth Byram Ewan of Flemingsburg, Ky., October 20.

ALEXANDER S. WAISS, M.D., San Francisco, to Miss Anna M. Wueck of Reading, Pa., at San Francisco, August 24.

ONNIE EARL STEVENSON, M.D., Labette, Kan., to Miss Nancy Wilmetta Belknap of Altamont, Kan., October 11.

FRANK BEEBY CONTERMAN, M.D., Ilion, N. Y., to Miss Beatrice Thornton Buley of Syracuse, N. Y., October 15.

JOHN SULLIVAN CLIFFORD, M.D., Charlotte, N. C., to Miss Mary Agnes Keely, at Nashua, N. H., October 21.

JOHN ADOLPH GREENE, M.D., to Miss Huldah Elizabeth Pettengill, both of Rumford, Me., October 21.

CHARLES WALSH MCQUILLEN, M.D., Cascade, Ia., to Miss Frances Bradley of Iowa City, Ia., October 19.

JOHN HUDSON BLAUVELT, M.D., Beacon, N. Y., to Miss Mae Costello Furman of Nyack, N. Y., October 21.

JOHN HAROLD POWERS, M.D., Pueblo, Colo., to Miss Edith May Brooks of Wellington, Kan., October 20.

EDMUND WILLIAM BUTLER, M.D., San Francisco, to Miss Wilma Jacobs of Berkeley, Cal., October 19.

WILLIAM ALVAH PARKS, M.D., to Miss Mary Alice Sell, both of Akron, Ohio, September 15.

JACQUES J. ROTH, M.D., New York City, to Miss Nellie A. Levy of Passaic, N. J., October 21.

FRANK ANSON BECKER, M.D., to Miss Edna Refsum, both of New York City, October 21.

WALTER DENT WISE, M.D., to Miss Agnes Bordon Whiting, both of Baltimore, October 20.

OSCAR LEWIS ZELLE, M.D., to Miss Elizabeth Kane, both of Springfield, Ill., October 20.

ROY NEWTON FULLER, M.D., to Miss Lena Hesse, both of Tulare, Cal., October 21.

CHARLES FRANCIS YERGER, M.D., to Miss Helen Zegar, both of Chicago, October 17.

Deaths

Edward Hodges, M.D. Long Island College Hospital, 1895; formerly a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States; assistant surgeon of the Forty-Seventh New York Infantry, U. S. A., during the Spanish-American War with service in Porto Rico; for several years captain and assistant surgeon, N. G., N. Y., assigned to the Twenty-Third Infantry; once president of the Long Island Medical Society; visiting surgeon to the House of St. Giles the Cripple, Brooklyn, and associate visiting surgeon to Williamsburg, Bushwick, Swedish and Samaritan Hospital; died at his home in Brooklyn, October 30, from pneumonia, aged 44.

Joseph Smith Richards, M.D. Bellevue Hospital Medical College, 1875; a Fellow of the American Medical Association; medical director of the Dr. W. H. Groves Latter Day Saints' Hospital, and surgeon to the San Pedro, Los Angeles and Salt Lake Railroad, Salt Lake City; for many years visiting surgeon to the Holy Cross Hospital, Salt Lake City; died at his home, October 30, from Hodgkin's disease, aged 66.

Hugo Maximilian von Starkloff, M.D. University of Tübingen, Germany, 1854; surgeon of the Forty-Third Illinois Volunteer Infantry and medical director of the First Division, Seventh Army Corps during the Civil War; formerly professor of orthopedic surgery in the Marion-Sims-Beaumont College of Medicine; for many years a practitioner of St. Louis; died at his home in that city, October 31, aged 86.

William Bowman, M.D. Medical College of Ohio, Cincinnati, 1875; a member of the Kentucky State Medical Association; a veteran of the Civil War and past department commander of the Grand Army of the Republic, State of Kentucky; for three terms a member of the state legislature and once consul of the United States in China; died at his home in Vanceburg, Ky., October 23, aged 71.

John J. Castellanos, M.D. Tulane University, New Orleans, 1856; a member of the Louisiana State Medical Association, and second vice-president of the Orleans Parish Medical Society in 1892; adjunct professor of surgery and lecturer on surgery and later professor of surgical anatomy in the Charity Hospital Medical College, New Orleans; died at his home in that city, October 29.

Cyrus Jay Seltzer, M.D. University of Pennsylvania, Philadelphia, 1881; for twenty years assistant surgeon at the Wills Eye Hospital, Philadelphia; laryngologist to the Philadelphia Hospital and Philadelphia Polyclinic Hospital; for the last five years a resident of Lebanon, Pa.; died at his home in that city, October 23, from heart disease, aged 59.

John R. Colburn, M.D. Washington University, St. Louis, 1878; a Fellow of the American Medical Association; president of the Pacific Coast Railway Surgeons Association in 1907; for several years chief surgeon of the Salt Lake, San Pedro and Los Angeles Railway; died at his home in Los Angeles, October 27, from heart disease, aged 60.

Franklin Pierce Miller, M.D. New York University, New York City, 1876; visiting physician to the Bushwick Hospital and to the outpatient department of St. Mary's Hospital, Brooklyn; since his retirement in 1912, a resident of Tappen, N. Y.; died in the Long Island College Hospital, Brooklyn, October 17, aged 60.

Roland F. Blount, M.D. Central College of Physicians and Surgeons, Indianapolis, 1898; of Rushville, Ind.; a Fellow of the American Medical Association; died in a hospital in Indianapolis, August 28, from carcinoma of the pancreas, seventeen days after an operation on the gall-bladder, aged 40.

Frederick Joseph McNulty, M.D. Cooper Medical College, San Francisco, 1896; of Yreka; a member of the Medical Society of the State of California; physician and surgeon to the Siskiyou County Hospital; died at Oakland, Cal., while being taken to San Francisco for special treatment, October 21, aged 45.

Floyd Benton Parke, M.D. University of Buffalo, N. Y., 1879; a Fellow of the American Medical Association and prominent as a dermatologist; health officer of Elmira township and health commissioner of the city of Elmira; died at his home in Elmira, N. Y., October 9, from heart disease, aged 58.

James Sanford Denison, M.D. University of Tennessee, Nashville, 1904; a member of the Oklahoma State Medical Association and president of the McCurtain County Medical Society; a physician in the United States Indian Service; died at his home in Garvin, Okla., October 29, from malarial fever, aged 38.

William H. Bramblitt, M.D. New York University, New York City, 1857; a member of the Medical Society of Virginia; surgeon in the Confederate Army during the Civil War; died at his home in Pulaski, Va., October 30, from pneumonia following a fracture of the hip six days before, aged 85.

Franklin Fremont Finical, M.D. Starling Medical College, Columbus, Ohio, 1893; a member of the Ohio State Medical Association; assistant surgeon of the Pennsylvania System at Denison, Ohio, and a member of the Denison Board of Education; died at his home in that city, October 23, aged 51.

Daniel D. Neff, M.D. Bellevue Hospital Medical College, 1894; a member of the Syracuse Academy of Medicine; was found dead in his home in Syracuse, October 13, from the effects of poison, self-administered, it is believed, with suicidal intent while despondent on account of ill health, aged 45.

James Porter Brallier, M.D. Medico-Chirurgical College of Philadelphia, 1909; a Fellow of the American Medical Association; and a well-known young surgeon of Alexandria, Pa.; was crushed under an overturned automobile, October 18, near Hollidaysburg and instantly killed, aged 31.

Daniel Michael Sheedy, M.D. New York University, New York City, 1888; a member of the surgical staff of St. Francis' Hospital, Poughkeepsie, N. Y.; died suddenly at his home in that city, October 31, from heart disease, aged 49.

Warren H. Taylor, M.D. Detroit College of Medicine, 1896; a member of the Michigan State Medical Society and coroner of Genesee County; died at his home in Flint, Mich., October 29, from cerebral hemorrhage, aged 41.

Stanley Michael Piotrowski, M.D. Chicago College of Medicine and Surgery, 1914; died at his home in Chicago, September 18, from diabetes, aged 27.

Bukk G. Carleton, M.D. New York Homeopathic Medical College, New York City, 1876; genito-urinary surgeon to the Metropolitan, Hahnemann and Flower hospitals, New York City; a specialist on diseases of the kidney; died at his home in New York City, October 29, from heart disease, aged 57.

Cyrus Cue Davis Shelburn, M.D. Hospital College of Medicine, Louisville, Ky., 1906; a member of the Kentucky State Medical Association; died at his home in Cunningham, Ky., October 25, from the effects of poison self-administered, it is believed, with suicidal intent, aged 40.

John Wesley Beckett, M.D. Howard University, Washington, D. C., 1905; a member of the Medical Society of the State of Pennsylvania; a colored practitioner and one of the city physicians of Pittsburgh; died in the West Penn Hospital in that city, October 20, aged 35.

John Joseph Cassidy, M.D. University of Toronto, Ont., 1869; for sixteen years editor of the *Canadian Journal of Medicine and Surgery* and formerly president of the Board of Health of Toronto; died at his home in that city, August 1, from heart disease, aged 71.

Samuel Butler Grimes, M.D. University of Maryland, Baltimore, 1897; of Roland Park, Md.; died at the home of his father in Baltimore, October 25, from the effects of a gunshot wound of the head, self-inflicted it is believed with suicidal intent, aged 39.

Crowell Clarinton Hall, M.D. Dartmouth Medical School, Hanover, N. H., 1876; a member of the Maine Medical Association and one of the most prominent and wealthy citizens of Piscataquis County; died at his home in Dover, Maine, October 19, aged 60.

Frank Merril Vebber, M.D. Eclectic Medical College of the City of New York, 1884; town health officer of Clayton, N. Y.; coroner of Jefferson County in 1885 and 1888; died in the Watertown, N. Y., City Hospital, October 20, from diabetes, aged 58.

Phillip E. Parker, M.D. Tulane University, New Orleans, 1885; a Fellow of the American Medical Association; of Bay City, Tex.; was accidentally shot by a companion while shooting October 15 and died in the Jones Hospital, October 16, aged 55.

Robert W. Earll, M.D. Rush Medical College, 1853; formerly superintendent of the Columbus, Wis., Hospital, and for many years a practitioner of Milwaukee; died at the home of his daughter in Denver, October 26, from pneumonia, aged 91.

Walter Samuel Baker, M.D. New York Homeopathic Medical College, New York City, 1863; for more than half a century a practitioner of Newark, N. J.; died at his home in that city, October 26, from cerebral hemorrhage, aged 73.

Levi Houghton Kimball, M.D. Boston University, 1877; formerly of Bath, Maine, and for two terms a member of the city council; died at his home in Roxbury, Boston, October 21, aged 61.

Thomas J. Boyson, M.D. Royal University of Copenhagen, Denmark, 1869; of Plymouth, Cal.; died in the German Hospital, San Francisco, October 2, from cerebral hemorrhage, aged 69.

John Franklin Clark, M.D. University of Alabama, Mobile, 1909; a Fellow of the American Medical Association; died at his home in Paint Rock, Ala., September 22, aged 34.

John Robinson Gamble, M.D. Bellevue Hospital Medical College, 1866; a retired practitioner of Knox County, Ohio; died at his home near Mount Vernon, July 19, aged 77.

David C. Harmison, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1878; a veteran of the Civil War; died at his home in Havana, Ill., October 19, aged 69.

Charles G. Kuhlman, M.D. Rush Medical College, 1889; of San Francisco; a member of the Medical Society of the State of California; died in San Francisco, October 8.

John Fullerton Hicks, M.D. University of Michigan, Ann Arbor, 1865; died at his home in Menominee, Mich., October 17, from cerebral hemorrhage, aged 76.

J. Jackson Crider (license, Iowa, 1886) an itinerant practitioner; died at his home in Columbus Junction, Ia., October 12, from cerebral hemorrhage; aged 82.

John W. Jones, M.D. Eclectic Medical Institute, Cincinnati, 1868; of Milton, Wis.; died at his home in that place, October 21, aged 75.

Edwin A. Gaviller, M.D. McGill University, Montreal, 1873; died at his home in Hamilton, Ont., August 8, aged 74.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ARTICLES REFUSED RECOGNITION

Reports of the Council on Pharmacy and Chemistry

For the benefit of the medical profession and the encouragement of honest manufacturers, the Council on Pharmacy and Chemistry, when first organized, decided to publish a book which should contain authoritative information about medicinal preparations found to merit the consideration of physicians. This book, New and Nonofficial Remedies (N. N. R.) is republished annually, so that each edition contains descriptions of all the proprietary and nonofficial remedies which, up to the date of issue, the Council has found worthy of recognition. During each year descriptions of additional preparations appear in THE JOURNAL, are later issued in supplements to N. N. R., and finally are incorporated in the next edition of the book.

In addition to N. N. R., with its descriptions of medicinal articles found "acceptable," the Council has authorized for publication from time to time reports dealing with proprietary articles or with certain phases of the proprietary medicine business. These reports have been issued annually in book form, those deemed of interest to the general medical practitioner being previously published in THE JOURNAL. Reports which were of direct interest only to a few have been published in the annual volume only.

While, in its Reports, the Council has published the reasons which led to the rejection of some of the articles investigated, by far the greater portion of the Council's investigations have not been published for two reasons. First, it was thought that many of the products found ineligible did not justify reports because they were of interest to few physicians; and, second, it was desirable that the manufacturers should be given an opportunity to modify or improve the preparations found ineligible and thus make them acceptable to inclusion in N. N. R.; therefore, publication of reports dealing with rejected articles was postponed so far as possible. The Council having been in existence for nearly ten years, manufacturers have had ample time to adapt themselves to new conditions, and one of the reasons for delayed publicity no longer holds good. So far as the other reason is concerned, inquiries which come to the Council and to THE JOURNAL indicate that physicians do, for various reasons, seek information in regard to many proprietary products regarding which no report has been published. The Council, therefore, has decided to make public, even when no detailed reports are prepared, a brief outline of the reasons which led to the rejection of articles. In case consideration of such products was requested by their manufacturer or their distributing agents, these abstracts are not published until they have been submitted to the interested parties. When the Council takes up the consideration of an article on its own initiative, the abstract of such consideration naturally is published without consideration of the manufacturer. Included with these abstracts also will be brief abstracts of Council reports which have been prepared only for publication in the annual reports. The Council has authorized the publication of the first instalment of abstracts, which appears below.

Agar-lac

Agar-lac, said to be the product of "Agar-lac, Inc.," is sold by E. Fougera and Company, New York. The following "formula" for Agar-lac is published:

"Agar-Agar with Lactic Ferments	Grs. 4½
Phenolphthalein	Grs. ½"

Regarding the "lactic ferment," the identity of which is not declared by the manufacturer and for the viability of which no precautions appear to be taken, the Council's expert

on lactic acid ferments reported that *Bacillus bulgaricus* was present in small numbers only and that there were at least two other bacteria present, one of which is a gas-former of the *Bacillus coli* type.

The Council found that the amount of agar-agar in Agar-lac and the identity of the "lactic ferment" are not declared; that the name "Agar-lac" is blown in the glass and that the method of its exploitation will lead laymen to use it to their detriment; that the claims that it "facilitates assimilation of proteids" and that it is of value as an aid to "gastro-intestinal digestion" give a false value to the mixture and that the claims emphasize the action of agar-agar when from the composition it is evident that the phenolphthalein action will predominate; that the name does not indicate its predominating constituent, phenolphthalein, and that the use of a ready-made combination of cathartic drugs, such as agar-agar and phenolphthalein with lactic acid ferments, is unscientific.

Aseptikons

Aseptikons are vaginal suppositories sold by the Chinosol Co. of New York. Each suppository is said to contain:

Ac. Salicicylici	2 grs.
Ac. Borici	10 grs.
Quin. purae (Alkal.)	1 gr.
Chinosol	2 grs.
But. Cacao	60 grs.

The following claims appear in advertisements:

"These suppositories are indicated in cervicitis, leucorrhea, specific and non-specific vulvo-vaginitis and in all cases where complete vaginal antisepsis is desired."

"Non Toxic, Non Irritating, No Damage to Membranes. Yet a More Powerful Antiseptic than Bichloride."

The Council decided that the foregoing claims in the absence of evidence must be held exaggerated and likely to mislead, and also that the claim "Stronger than Bichloride" which appears on the box is misleading.

The position of the Council is that "In the case of pharmaceutical preparations or mixtures the trade name must be so framed as to indicate the most potent ingredients." The name Aseptikons does not give any indication of the ingredients of the product.

The Council holds that "The combination of two or more remedies in a mixture must be considered contrary to scientific medicine unless a distinct reason exists for such combination." No evidence has been submitted to establish the value of the combination in Aseptikons.

On the basis of the evidence submitted the Council voted that Aseptikons be refused recognition because unwarranted and misleading therapeutic claims are made because the name does not indicate its potent constituents, and because the combination of two or more remedies in a mixture is considered contrary to scientific medicine unless a distinct reason exists for such combination.

Bacillicide

Bacillicide, sold by the Prophytol Products Company, Richmond, Va., is an antiseptic solution of the Glyco-Thymoline type. Vague, indefinite and misleading statements are made in regard to its composition and method of preparation.

The Council voted that Bacillicide was unacceptable because only a non-quantitative and therefore meaningless formula was published; because vague and unsubstantiated statements were made as to its method of preparation (removal of irritating action of formaldehyde); because exaggerated claims as to its therapeutic action were made; because its name did not indicate the potent ingredients of the pharmaceutical mixture but suggested its use without consideration of the composition, and because the use of an indefinite complex preparation such as Bacillicide is represented to be, is contrary to the best interests of the public.

Iron Solution for Intravenous Therapy—Perkins and Ross

Iron Solution for Intravenous Therapy, Perkins and Ross, manufactured by Perkins and Ross, Colorado Springs, Colo., is said to be an aqueous solution containing soluble iron phosphate, sodium chloride and "calcium creosote." Its use by intravenous injection is recommended as a "chalybeate, emmenagogue and tonic" and in "all conditions in which iron is indicated." The advertising circular overemphasizes the use of intravenous medication and minimizes its drawbacks and dangers.

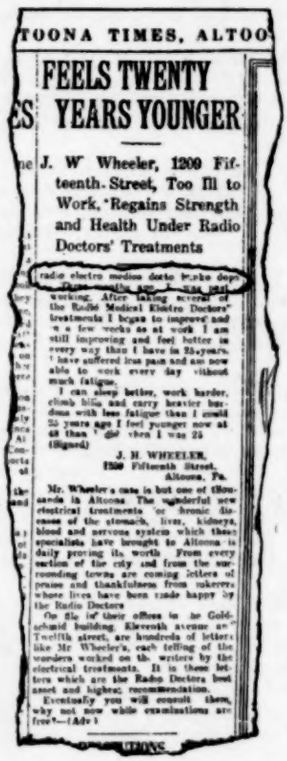
The composition of "calcium creosote" was not furnished and it was acknowledged that only a part of the "calcium creosote" enters into the solution. As the intravenous administration of a drug like iron, which must be continued for long periods, cannot be considered the method of choice, as the composition of the solution is such that changes may occur on standing, etc., which would make the preparation dangerous, and as the method of marketing the solution does not insure its sterility, further increasing the danger of its use, the product was rejected.

(To be continued)

THE RADIO MEDICAL ELECTRO DOCTORS

A Printer Inadvertently Expresses an Opinion on These Doctors

In preparing manuscript for publication, it is not unusual to insert what are known as "catch lines" for the purpose of aiding the "make-up man" in preparing the matter according to the author's ideas. Such "catch lines," of course, are deleted by the proofreader before the material finally appears in its finished form. Occasionally, however, these lines are overlooked, and the reader is given a peep behind the scenes of the printing office.



TOONA TIMES, ALTOO

FEELS TWENTY YEARS YOUNGER

J. W Wheeler, 1209 Fifteenth Street, Too Ill to Work, Regains Strength and Health Under Radio Doctors' Treatments

radio electro medico docto bunko dope

Three months ago I was past working. After taking several of the Radio Medical Electro Doctors' treatments I began to improve and in a few weeks to at work I am still improving and feel better in every way than I have in 25 years. I have suffered less pain and am now able to work every day without much fatigue.

I can sleep better, work harder, climb hills and carry heavier burdens with less fatigue than I could 25 years ago I feel younger now at 48 than I did when I was 25

(Signed)

J. H. WHEELER,
1209 Fifteenth Street,
Altoona, Pa.

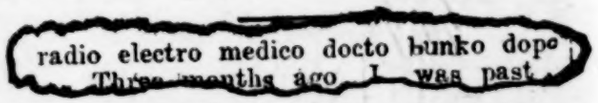
Mr. Wheeler's case is but one of thousands in Altoona The wonderful new electrical treatments for chronic diseases of the stomach, liver, kidneys, blood and nervous system which these specialists have brought to Altoona is daily proving its worth From every section of the city and from the surrounding towns are coming letters of praise and thankfulness from sufferers whose lives have been made happy by the Radio Doctors

On file at their offices in the Goldenrod building Eleventh avenue and Twelfth street, are hundreds of letters like Mr Wheeler's, each telling of the wonders worked on the writers by the electrical treatments. It is these letters which are the Radio Doctors best asset and highest recommendation.

Eventually you will consult them, why not now while examinations are free?—(Adv.)

Itinerant quacks have certain stock advertisements which are interspersed with testimonials—genuine or faked. The testimonials, being a fluctuating quantity, are usually set separately from the main advertisement.

The Radio Medical Doctors is the name assumed by some quacks who have recently been operating in Altoona, Pa. In common with their kind, they publish advertisements in local newspapers. We reproduce in miniature one advertisement that appeared in the Altoona *Times* Oct. 1, 1914. It consists of the usual extravagant statements found in such advertisements, together with a testimonial from a Mr. Wheeler. The testimonial had evidently been sent to the printers at a different time from the body of the advertisement. That the type-setter might know just where this testimonial was to be used, he headed it with a "catch line." This "catch line" we have marked in the miniature reproduction, and that it may be more easily read, have reproduced slightly enlarged thus:



The average newspaper man, whether he works in the composing room or on the editorial staff, is usually no fool. The printer who headed the Radio Medical Electro Doctors' testimonial as "bunco dope" was "wise." His classification cannot be improved on.

MAIGNEN ANTISEPTIC POWDER

Report of the Council on Pharmacy and Chemistry

The report which appears below was submitted by a referee and after adoption by the Council was sent to the manufacturer for comment, in accordance with the Council's regular procedure in such cases. The manufacturer's comments were transmitted to a second referee, who reported that after a careful consideration of the manufacturer's reply he saw no valid reason for a modification of the report. The referee also reported that a visit to the Maignen Institute further

served to convince him of the viciousness of the treatment as given and that the records made by the persons in the employ of the institute were too inadequate to serve as clinical evidence. On the referee's recommendation, the report as originally adopted was reendorsed by the Council and authorized for publication. W. A. PUCKNER, Secretary.

Maignen Antiseptic Powder is marketed by the "Maignen Institute for the Study of Bacterial Diseases," Philadelphia. It is claimed to be a mixture of calcium hydroxid, sodium carbonate, aluminum sulphate and boric acid, but no statement as to the amount of the several constituents is furnished. Its action depends on the sodium hydroxid which is formed when the powder is treated with water, 1 Gm. of the powder as now submitted to the Council yielding 0.32 Gm. of sodium hydroxid (NaOH) and a specimen obtained a year ago yielding 0.28 Gm. Its promiscuous use is recommended both to physicians and to the public with claims which are extravagant, preposterous and even dangerous.

A pamphlet, clearly intended for the laity, entitled "What Is Catarrh?" gives direction for the "sterilization" of the nose, throat, stomach, lungs, eyes, gums, mouth and the genito-urinary tract. The following, taken from this pamphlet, illustrates the absurdity of the claims made for Maignen Antiseptic Powder:

"STERILIZATION OF THE STOMACH

"TAKE of the Maignen Antiseptic Powder half the quantity raised on a dime, scant.

"ADD to a tumbler of water, preferably warm, and stir.

"DRINK SLOWLY.

"THIS IS WHAT MAY HAPPEN:

"1). Belching may be the first indication of the sterilization of the stomach.

"2). The excess of acidity is corrected.

"3). The fermentation is stopped.

"4). The sterilization extends to the Intestinal Tract.

"5). The bowels are regulated without purgation.

"6). The whole metabolic process is improved.

"WHEN AND HOW OFTEN TO DRINK THE ANTISEPTIC SOLUTION.

"a). For Indigestion, whenever distressed, before or after meals.

"b). For Constipation, half an hour before breakfast or last thing at night.

"c). For Gastro-Intestinal troubles, such as Typhoid Fever, Dysentery and Cholera, which are the most serious forms of catarrhal inflammation, take half a tumbler or a whole tumbler of hot water with half the quantity of Powder raised on a dime every hour, and between times a glass of generous [sic] wine.

"REMARKS

"The sterilization recommended here is a plain disinfecting process which does not interfere with medical treatment. It is, on the contrary, of great assistance to it.

"It has been found very effective in breaking up the cigarette habit. It does away with the craving by removing the morbid irritation of the mucous membrane."

Eighty-eight disorders are listed in a pamphlet entitled "Antiseptic Therapeutics" all of which are reported as having been treated with success. The dangerous character of the Maignen "sterilization" propaganda is illustrated by a pamphlet "First Aid to Baby-Sick" and by the recommendation on the trade package:

"To prevent Blood Poisoning, Lockjaw, Hydrophobia and Infectious Diseases."

The legend on the trade package and the advertising matter contained in it are likely to lead the public to place dependence on a weak sodium hydroxid solution as a means of preventing blood-poison, lockjaw, hydrophobia and infectious diseases. The pamphlet "First Aid to Baby-Sick" recommends its use in sore eyes, teething and sore mouth, sore throat, running ears, running nose, sore chest, summer complaint, skin troubles and infection after vaccination; if any trust is put in these claims, they are bound to lead to the sacrifice of many infants through neglect of proper treatment.

Patent No. 1,086,339 has been granted on this powder to P. J. A. Maignen of Philadelphia by the U. S. patent office on the following specification of claim made in the application:

"1. A process for destroying microorganisms on living tissue, without injuring the latter . . . whereby the growth of such organisms is inhibited and their substance dissolved without deleterious effect upon contiguous healthy tissue."

With brazen assurance this grant has been twisted by the unscrupulous promoters into a government endorsement of the preparation. It, of course, means nothing of the sort, as, no doubt, in accordance with legal routine the patent was granted without any investigation by the patent office to determine the effectiveness of the powder for the purpose claimed.

In view of the dangerous, unwarranted and absurd claims made for Maignen Antiseptic Powder the referee recommends that it be refused recognition, and that the Council declare its agreement with views expressed in the article "Maignen Pulv." published in THE JOURNAL, Feb. 15, 1913, p. 537, particularly the following:

"The germicidal powers of strong alkalies have long been known, but the inconvenience of their application to tissues and mucous membranes has prevented their use. That they will be of service when sufficiently diluted not to irritate the tissues is improbable, for the antiseptic power of such solution is slight and the disinfectant value practically nil."

Because the Maignen Institute has twisted the granting of U. S. patent No. 1,086,339 into a quasi-endorsement of the claims made for Maignen Antiseptic Powder it is recommended that a copy of this report be sent to the Commissioner of Patents as a protest against the present law, which authorizes the granting of patents on unproved and improbable medical claims.

Correspondence

Unauthorized Insertion of Advertisement

To the Editor:—I notice the regular Kenilworth Sanitarium advertisement displayed in the October number of *American Medicine*, and I would thank you to put this note in THE JOURNAL of the American Medical Association, in order that the medical profession may be informed that the insertion of said advertisement was entirely unauthorized.

SANGER BROWN, M.D., Kenilworth, Ill.
Chief of Medical Staff, Kenilworth Sanitarium.

[COMMENT.—The foregoing may explain how it sometimes happens that clean, ethical advertisements appear in publications whose principal income is derived from nostrum and fake advertisements.—ED.]

The Metchnikoff Theory

To the Editor:—The theory, so ably supported by Metchnikoff, which ascribes to the leukocytes the function of picking up and destroying bacteria which find their way into the blood or tissues (phagocytosis) is now generally accepted as having been demonstrated by observation and experimental evidence.

I have no desire to detract from the credit due to Metchnikoff in connection with this theory, but in justice to myself desire to call attention to the fact that this theory was suggested by me several years before the publication of Metchnikoff's first paper on the subject. In support of this statement, I quote from my book entitled "Bacteria," published in 1884 (William Wood & Co., New York), pp. 250 and 251:

"If we add a small quantity of culture-fluid containing the bacteria of putrefaction to the blood of an animal, withdrawn from the circulation into a proper receptacle, and maintained in a culture-oven at blood-heat, we will find that these bacteria multiply abundantly, and evidence of putrefactive decomposition will soon be perceived. But, if we inject a like quantity of the culture-fluid with its contained bacteria into the circulation of a living animal, not only does no increase and no putrefactive change occur, but the bacteria introduced quickly disappear, and at the end of an hour or two the most careful microscopical examination will not reveal the presence of a single bacterium. This difference we ascribe to the vital properties of the fluid as contained in the vessels of a living animal; and it seems probable that the little masses of protoplasm known as white blood corpuscles are the essential histological elements of the fluid, so far as any manifestation of vitality is concerned.

"The writer has elsewhere suggested that the disappearance of the bacteria from the circulation, in the experiment above referred to, may be effected by the white corpuscles, which, it is well known, pick up, after the manner of amoebae, any particles, organic or inorganic, which come in their way. And it requires no great stretch of credulity to believe that they may, like an amoeba, digest and assimilate the protoplasm of the captured bacterium, thus putting an end to the possibility of its doing any harm.

"In the case of a pathogenic organism we may imagine that, when captured in this way, it may share a like fate if the captor is not paralyzed by some potent poison evolved by it, or overwhelmed by its superior vigor and rapid multiplication. In the latter event, the active career of our conservative white corpuscle would be quickly terminated, and its protoplasm would serve as food for the enemy. It is evident that in a contest of this kind the balance of power would depend on circumstances relating to the INHERITED vital characteristics of the invading parasite and of the invaded leukocyte."

It seems to me that the theory of phagocytosis is very clearly stated in the foregoing quotation, although the term "phagocyte" had not yet been suggested.

The book from which the quotation is made was published in the spring of 1884, but it was written in 1883 and the preface, written last, is dated Aug. 15, 1883. The statement that "the writer has elsewhere suggested that the disappearance of the bacteria from the circulation in the experiment above referred to may be effected by the white corpuscles" is supported by the following quotation from a paper read at the Cincinnati meeting of the American Association for the Advancement of Science, Aug. 18, 1881:

"It has occurred to me that possibly the white corpuscles may have the office of picking up and digesting bacterial organisms which by any means find their way into the blood. The propensity exhibited by the leukocytes for picking up inorganic granules is well known, and that they may be able not only to pick up but to assimilate, and so dispose of, bacteria which come in their way does not seem to me very improbable in view of the fact that amoebae, which they resemble so closely, feed on bacteria and similar organisms" (*Tr. A. A. A. S.* for 1881, p. 175).

The paper from which this quotation is made is entitled "A Contribution to the Study of the Bacterial Organisms Commonly Found on Exposed Mucous Surfaces and in the Alimentary Canal of Healthy Individuals. Illustrated by Photo-Micrographs. By George M. Sternberg, Surgeon U. S. Army, late 'Fellow by Courtesy' of the Johns Hopkins University. With Plates XI, XII and XIII."

The first record I can find of Metchnikoff's announcement of the theory of phagocytosis is in his paper in *Virchows Archiv*, 1884, xcvi, 177, "Ueber eine Sprosspilzkrankheit der Daphnien."

George M. Sternberg, M.D., Washington, D. C.

"Flying Clinics" in the Medical Treatment of Rural Schoolchildren.—Dr. A. E. Williams describes in the *Journal of State Medicine* for October some of the measures employed in the medical treatment of schoolchildren in Great Britain. In thinly populated rural districts facilities for remedying many defects found among the children are lacking. Although the children of the rural districts are, as a rule, healthier and stronger than those in more thickly populated districts, it became necessary to devise some special measures for treating defective vision, dental caries, etc. For this purpose, "flying clinics" were established. For the flying eye clinic, a portable apparatus was devised, consisting of a small tent of dark material for a dark room, an ophthalmic lamp and a case of trial lenses. For dental defects, both flying clinics, working from school to school throughout a county, and clinics at a fixed center to which all the children in the given county were sent, were employed. Dr. Williams says it is now proved that flying clinics are both practical and useful, the cost being not great. He believes that the time is not far distant when these clinics will be looked on as an essential feature in every scheme of medical inspection.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

THE PRICE OF RADIUM ACTIVATORS

To the Editor:—The treatment of disease by radium emanations is being urged on the medical profession by interested purveyors of apparatus for producing these emanations. There is a certain mystery with reference to radium which, combined with its high price, leads the physician readily to accept the prices charged for these activators. Thus, one of the most widely advertised activators is priced at $200 for an apparatus which will produce 2,500 Mache units per day in ½ liter of water. Another firm advertises a similar apparatus at a price of $165. Still another firm claims to produce an apparatus of equal capacity for $15.

Being interested in this subject, I wrote to several companies asking prices and particularly the amount of radium which is necessary to produce this quantity of emanation. To the first firm I wrote as follows:

"Please quote me the price of a — — — activator capable of furnishing 2,500 Mache units per day. Will you kindly indicate to me the approximate amount of radium that is necessary to produce this strength of radium emanation?"

With reference to the amount of radium necessary, the reply of this firm is somewhat evasive:

"In answer to your question as to the approximate amount of radium required to produce a desired strength of emanation, we beg to reply that this depends entirely upon which salt of radium you use, its concentration and how you use it. Its full emanation is available when a soluble salt, as bromide or a chloride is dissolved in water, but this is only temporary, as its strong affinity for other salts soon causes it to precipitate, even attacking the silica of the glass; the emanation is then greatly reduced—in instances we have known it to fall within 2.5 per cent. of its original amount. If an insoluble salt like the sulphate or the carbonate be used, you can generally obtain from 5 to 8 and sometimes even 10 per cent. of its available emanation. Unless you are thoroughly familiar with radium, we would not advise you to attempt constructing your own apparatus, because in the end you would undoubtedly lose a considerable proportion of your radium, and the result would be much more expensive than if you purchased an activator at the start."

Of course, it is well known that the different radium salts differ in their radium activity, but it would have been no great task for the firm to indicate the amount of some one salt or of radium element.

To the second company I wrote as follows:

"Do you furnish an activator for producing radium emanations? If so, please quote me the price of an apparatus capable of producing a solution containing 2,500 Mache units per day. Would you kindly tell me the approximate amount of radium necessary for the production of a water containing 2,500 Mache units per day?"

In reply to this query, I received the following letter:

"In answer to your inquiry in your letter of September 25, we are obliged to advise that we cannot supply an apparatus for the production of so small an amount of radium emanation as 2,500 Mache units per day. The amount of radium necessary for the production of a water containing 2,500 Mache units per day would be 0.01 mg. of radium element."

The third firm advertises an apparatus at the low price of $15, but says in its letter:

"The price of our No. — — — is $25. This we guarantee to generate 2,700 Mache units. This guaranty is based on a generating capacity of from 500 to 1,000 Mache units more than the rating. The reason for this is that the emanation is three times as soluble in air as it is in water, and in spite of careful handling, a certain amount of the emanation will be lost."

In view of these varying prices, it is pertinent to ask, What is the reason for this enormous excess charged beyond the value of the radium contained? One one-hundredth mg. of radium element is worth approximately $1.25. If this is the value of the radium contained in the apparatus, is it possible that bottles and containers are worth from $164 to $199? A similar disparity between charges and value appears in the price for rental of these pieces of apparatus. Thus, the apparatus costing $200 rents for $80 for a period of six months. Is it possible that the credit of physicians is so poor that they must pay such enormous prices? Even the cheap apparatus costing $15 is rented for $22.50 for a period of six months.

I would be much interested in any comments which you may see fit to make on this situation. J. H. S.

Answer.—In reply to the first question, regarding the amount of radium necessary to produce 2,500 Mache units of emanation daily, it may be said that the total amount of emanation from 1 microgram (that is one millionth of a gram) of radium (element) will correspond to 2,700 Mache units. The total amount of emanation produced by a given amount of radium is that which is obtained from material that has been kept in a sealed vessel for six weeks or more. If all emanation is removed from a sample of radium at the start, then at the end of twenty-four hours only about one-sixth of the maximum amount of emanation will have accumulated. If all of the emanation produced were effective, then it would require 6 micrograms of radium to yield 2,700

Mache units in twenty-four hours. At $120 a milligram this amount of radium would be worth 72 cents.

The answer to the second question is in fair agreement with the foregoing statement. It is there stated that 0.01 mg. (10 micrograms) of radium element will produce 2,500 Mache units per day. Doubtless the writer of that statement made allowance for some loss, as would be inevitable in the actual therapeutic use of radium. Actually 10 micrograms of radium would produce emanation corresponding to 2,500 Mache units in about fourteen hours; or in twenty-four hours with a 58 per cent. efficiency.

When it comes to the practical utilization of the emanation in the preparation of drinking water the statements in reply to the first question are in the main correct. A chemist familiar with the manipulation of radio-active substance could by use of a soluble radium salt get each day practically the whole of the emanation produced and bring it into solution in the water intended for drinking. But such work requires technical skill in manipulation; in the first place to avoid loss of the emanation and secondly to prevent ultimate loss of the valuable radium or its spontaneous conversion into an insoluble form as pointed out in the answer to the first question.

The practicing physician, or the patient using the active water, is not in general skilled in the handling of radium or its emanation, and so requires an apparatus with which he "pushes the button, and the machine does the rest." In the "activators" on the market the radium is practically always in the form of an insoluble salt, probably sulphate or carbonate. In this form only a small percentage of the emanation is given off. Suppose, however, that only 5 per cent. is available, as this is the lowest figure given in the answer to the first question: then to produce 2,500 Mache units daily with 5 per cent. efficiency would require twenty times as much radium as if all the emanation were available, namely, 120 micrograms (0.12 mg.), worth $14.40.

In regard to the third question, it would seem that it would be possible to supply an activator which would give 2,500 Mache units daily at the price stated, $25, and still leave a reasonable margin of profit.

ARTICLES ON INTRASPINAL INJECTIONS OF SALVARSAN IN PARESIS AND LOCOMOTOR ATAXIA

To the Editor:—Please inform me if any extensive work is being carried on with intraspinal injections of salvarsan in cases of paresis and locomotor ataxia. Who is doing this work? Can a detailed statement or a summary of it be obtained?

A. E. CONTER, M.D., Chattahoochee, Fla.

ANSWER.—The following is a list of references to the work on this subject:

Johnson, G. T.; Breaks, L. Z., and Knoefel, A. F.: The Treatment of Tabetic Optic Atrophy with Intraspinal Injections of Salvarsanized Serum, THE JOURNAL, Sept. 5, 1914, p. 866.

Riggs, C. E., and Hammes, E. H.: Results of One Hundred Injections of Salvarsanized Serum, THE JOURNAL, Oct. 10, 1914, p. 1277.

Spencer, G. W.: Intrathecal Iniection of Salvarsanized Serum, *Lancet*, London, May 30, 1914; Abst., THE JOURNAL, July 4, 1914, p. 65.

Brown, P. K., and Cummins, W. T.: Swift-Ellis Treatment of Cerebrospinal Syphilis, *California State Jour. Med.*, July, 1914.

Gradwohl, R. B. H.: Treatment of Syphilis of Nervous System by Means of Salvarsanized Serum, *Lancet-Clinic*, July 11 and 18, 1914.

Mapother, E., and Beaton, T: Swift-Ellis Treatment of General Paralysis, *Lancet*, London, April 18, 1914; abstr., THE JOURNAL, May 16, 1914, p. 1585.

McCaskey, G. W.: Autoserosalvarsan Treatment of Syphilis of the Central Nervous System, THE JOURNAL, May 30, 1914, p. 1709.

Swift, H. F., and Ellis, A. W. M.: The Treatment of Syphilitic Affections of the Central Nervous System, with Special Reference to the Use of Intraspinous Injections, *Arch. Int. Med.*, September, 1913, p. 331.

Hough, W. H.: Intraspinous Injection of Salvarsanized Serum in Treatment of Syphilis of Nervous System, Including Tabes and Paresis, THE JOURNAL, Jan. 17, 1914, p. 183.

McCaskey, G. W.: Autoserosalvarsan Treatment of Syphilis of Central Nervous System, THE JOURNAL, Jan. 17, 1914, p. 187.

A New Treatment for Cerebrospinal Syphilis, Including Tabes and Paresis, editorial, THE JOURNAL, Jan. 17, 1914, p. 209.

Myerson, A.: Intraspinous Injection of Salvarsanized Serum, correspondence, THE JOURNAL, Jan. 31, 1914, p. 396.

Cutting, J. A., and Mack, C. W.: Intraspinal Injections of Salvarsanized Serum in Paresis, THE JOURNAL, March 21, 1914, p. 903.

Bernstein, H. S.: A Suggestion in the Treatment of Syphilis, THE JOURNAL, March 21, 1914, p. 914.

Ayers, J. B.: Salvarsanized Serum (Swift-Ellis Treatment) in Syphilitic Diseases of Central Nervous System, *Boston Med. and Surg. Jour.*, March 19, 1914.

Jefferson, C. W.: Intraspinous Injection of Salvarsanized Blood Serum in Syphilitic Affections of Central Nervous System, *Kentucky Med. Jour.*, April 1, 1914.

Marinesco, G., and Minea, J.: Salvarsanized Treatment, *Bull. de l'Acad. de méd.*, Feb. 17, 1914.

Pilsbury, L. B.: Paresis Patients Treated with Intraspinal Injections of Salvarsanized Serum, THE JOURNAL, Oct. 10, 1914, p. 1274.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: Los Angeles, December 8. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

DELAWARE: Dover and Wilmington, December 8-10. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Palatka, December 2-3. Sec., Dr. E. W. Warren, 102 Front St., Palatka.

KENTUCKY: Louisville, December 16-18. Sec., Dr. A. T. McCormack, Bowling Green.

MARYLAND: Baltimore, December 8. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown. Homeopathic, Baltimore, December 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton, Baltimore.

OHIO: Columbus, December 8-10. Sec., Dr. George H. Matson.

PENNSYLVANIA: Philadelphia, December 1-3. Sec., Dr. N. C. Schaeffer, Harrisburg.

VIRGINIA: Richmond, December 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

Arkansas May Report

Dr. W. S. Stewart, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, May 12-13, 1914. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 61, of whom 51 passed and 10 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1902) 84.2; (1908) 80; (1913) 77.3; (1914) 75, 75.5, 76.2, 77.1, 78, 78.3, 78.4, 78.7, 78.8, 79.2, 79.7, 80, 81.2, 81.3, 81.8, 83, 83, 83.3, 84, 85, 85.6, 86, 89.5, 90.3.	
University of Colorado	(1895)	82.7
University of Louisville	(1895) 81.4; (1894)	84
Tulane University of Louisiana	(1910)	82.2
University of Oklahoma	(1914)	84.7
Meharry Medical College	(1904) 70.7*; (1909) 70.3*; (1914) 78.6, 83	
University of Nashville	(1905)	83
University of Tennessee	(1913) 80; 81.6; (1914) 75, 75, 78.4, 79.4, 80, 82, 82.5, 82.7, 83, 84, 84.7, 85.8.	

* Credit allowed for years of practice.

FAILED

Louisville and Hosp. Med. College	(1908)	59.5
University of Louisville	(1909) 66.2; (1911)	63
University Medical College, Kansas City	(1911)	64.3
Meharry Medical College	(1909) 63.8; (1912) 55.7; (1913) 46.3; (1914) 68.8, 70.3	
University of Tennessee	(1914)	63.7

The following questions were asked:

ANATOMY

1. Name the bones of the upper extremity. 2. Describe the scapula. 3. Give the boundaries and contents of the axilla. 4. Give the origin, relations and branches of the femoral artery. 5. Describe the duodenum, giving nerve and blood supply. 6. Name the structures composing the larynx, with nerve and blood supply. 7. Give the origin, course and termination of thoracic duct. 8. Give the origin, course and distribution of the musculospiral nerve. 9. Describe the fourth ventricle. 10. Name the structures divided in an amputation at knee-joint.

PHYSIOLOGY

1. Give the origin and significance of urea. 2. What general conditions or factors influence blood-pressure and blood-velocity? 3. Describe and discuss hunger and thirst. 4. Name the veins which form the portal vein, and give its function. 5. Give the function of the lymphatic system. 6. Give the function and location of the gall-bladder and its connection with other organs. 7. Define osmosis, endosmosis and exosmosis. 8. Name and describe the salivary glands. 9. What digestive disturbances follow the removal of the pancreas? 10. How do the products of digestion find their way into the blood?

CHEMISTRY

1. Name seven elements, giving symbol, valence and atomic weight. 2. How is oxygen prepared for commercial use? 3. Define organic, inorganic and physiologic chemistry. 4. Give chemical name and formula of sugar of lead; Epsom salts; tartar emetic. 5. What are the chemical changes if you mix calomel and lime-water? 6. Give Heller's test for albumin and the bismuth test for sugar in urine. 7. Give test for blood in urine. 8. What are proteins and from what are they derived? 9. What is lunar caustic? Dose? Antidote? 10. What is salol and when administered what chemical changes take place?

HYGIENE

1. Define hygiene. 2. Describe the physiologic action of alcohol. 3. Describe the preparation of patient, surgeon, instrument and surroundings for a surgical operation. 4. What is antitetanic serum? Give its use. 5. Give an effective method for controlling an epidemic of diphtheria. 6. What are the most important factors in preserving health, and how best observed and applied? 7. Name some of the conditions that predispose to or cause disease. 8. State the value of disinfection

and isolation in contagious diseases and the disinfectant employed. 9. How does hookworm enter the human system, and what measures should be taken to prevent it? 10. What would be your instruction to prevent the spread of typhoid fever?

MATERIA MEDICA

1. Define an expectorant. (*b*) Into what classes are expectorants divided? (*c*) Give an example of a nauseating expectorant. 2. Where does the belladonna plant grow? (*b*) What is its physiologic action? (*c*) What is its active principle? 3. What is a vascular contractor? (*b*) Give an example. 4. How much morphin is there in 1 ounce of powdered opium U. S. P.? (*b*) How much opium is there in 1 ounce of tincture of opium? 5. Define a solvent and an excipient. Give an example of each. 6. Give dosage of the following drugs: strychnin sulphate; hydrargyri chloridum mite; liquor poatssi arsenitis; hydrargyri iodid rubrum; ammonium chlorid; ferri sulphate; acetanilid; sodium salicylate; F. E. nucis vomica; atropin sulphate; ipecacuanha; magnesia sulphate. 7. Criticize the following prescriptions:

(*a*) F. E. Nucis Vomica oz. I.
Aquae q. s. ad oz. IV.
M. Sig. Tablespoonful t. i. d.—p. c.

(*b*) Tinct. Digitalis dr. ss.
Spts. Aetheris Nitrosi dr. III.
Liq. Ammon. Acetat. oz. ss.
Aquae q. s. ad oz. VI.
M. S. One ounce every three (3) hours.

(*c*) Tr. Ferric Chlorid dr. ss.
Tr. Iodine dr. ss.
Tannic acid grs. xx.
Glycerine q. s. ad oz. IV.
M. S. Swab throat.

8. Give properties and physiologic action of potassium permanganate. 9. Give physiologic action of potassium bromid. 10. How does acetanilid reduce an elevated temperature?

THERAPEUTICS

1. Name two conditions in which you would use thymol and state how you would use it. 2. What is especially indicated in treating scrofulosis with glandular enlargement? 3. In collapse of pneumonia, name the most efficient remedy and mode of administration. 4. Name six routes by which we may introduce remedies into the circulation. 5. How would you combat opium poisoning? 6. Give therapeutic uses of salicylic acid. 7. How may we administer ipecac in large doses without causing nausea? 8. Name three official preparations of mercury and give therapeutic uses of each. 9. Describe the technic in the administration of diphtheritic antitoxin. How does it combat the disease? 10. What class of patients is it that does not bear chloral hydrate well?

SURGERY

1. Describe ligation of the radial artery in the upper third. 2. Give symptoms, diagnosis and treatment of tuberculosis of the kidney. 3. What are the symptoms of air embolism? Give treatment. In what regions are surgical operations most liable to be followed by this condition? 4. Name three forms of bowel obstruction. Give symptoms that are common to each. Outline a surgical operation that may be required in any one form selected. 5. Give differential diagnosis of luxation of the hip and fracture of the surgical neck of the femur. Give methods of management of each. 6. Describe in detail an amputation of a finger at the metacarpophalangeal joint. 7. Define hernia. Describe oblique inguinal hernia; give symptoms of strangulation and treatment. How measure and fit a truss in inguinal hernia? 8. What is shock? Give symptoms. Give the treatment and the precautions that may be taken for its prevention. 9. Define necrosis and give the causes and surgical treatment. 10. Name varieties of fistula in ano and give treatment. Describe an operation for removal of hemorrhoids. Give symptoms and treatment of ischiorectal abscess.

OBSTETRICS

1. Describe how you would conduct a normal labor. Give in detail asepsis in conection therewith. Also what attention would you give the child if Neisser infection is suspected with the mother? 2. Define abortion and miscarriage. State how you would manage a case of incomplete abortion. Also state some morbid conditions of mother that is a frequent cause of either occurring. 3. What are the more frequent morbid conditions of the breasts which occur in puerperium? Give prophylaxis and treatment for same. 4. Give the mechanism of normal labor in R. O. A. position. 5. State how you would apply forceps in R. O. P. position, and what emergencies and complications should you be prepared for at such a delivery? 6. Give the varieties of version, and give in detail method of doing same in any variety you may select. 7. What is accidental hemorrhage occurring in gestation? Give causes, varieties and treatment. 8. How would you manage a case of retained placenta associated with profuse hemorrhage? 9. Describe some of the more frequent etiologic factors in puerperal infection. 10. What is asphyxia neonatorum? Give causes and treatment. Describe Sylvester's method of artificial respiration.

PATHOLOGY

1. Explain the development of pus cells. 2. What general pathologic lesions characterize chronic alcoholism? 3. Describe the pathogenesis of gall-stones and the physical and chemical characteristics of one variety. 4. What is cretinism and with what is it associated? 5. Describe in detail the pathogenesis of pellagra. 6. What pathologic changes may cicatrices undergo? 7. What valve is most commonly involved in endocarditis? (*b*) What are the structural types of endocarditis and the common micro-organisms that produce these lesions? 8. What conditions may cause dropsical effusions in the abdomen and in the lower extremity? 9. What laboratory methods may be of service in the diagnosis of cancer of the stomach? 10. Name the varieties of urinary renal casts, describe the characteristics of each and state of what forms of renal disease they are a part.

GYNECOLOGY

1. What is pruritus vulvae? Give causes and treatment. 2. Name the different forms of vaginitis, giving etiologic factor in each, and treatment where the gonococcus is the causative agent. 3. Define urethral caruncle. Give symptoms and treatment. 4. Name causes and give treatment for dysuria. 5. In the early stage of cancer of the cervix what objective symptoms would you find to make you suspect same? How would you confirm the diagnosis, and what would be your treatment? 6. What anatomic changes will take place in order that a retroversion may occur? Give operative treatment for retroversion. 7. Give differential diagnostic points of salpingitis on the right side and appendicitis. 8. What are the more frequent causes of acute pelvic cellulitis? Give subjective and objective symptoms and your treatment. 9. What conditions would lead you to do a uterine curettement? Describe in detail your method of performing same. 10. Differentiate ascites, hydramnios and unilocular ovarian cyst.

THEORY AND PRACTICE OF MEDICINE

1. Give the physical signs, symptoms and treatment of pulmonary tuberculosis in the early stage of the disease. 2. Give differential diagnosis of variola and varicella. 3. Differentiate between chronic interstitial and chronic parenchymatous nephritis. Give prognosis of each. 4. Describe the physical signs of each stage of pneumonia and give treatment of each in robust subject. 5. Give symptoms and treatment of cerebrospinal meningitis. 6. Give etiology, symptoms, prognosis and treatment of rachitis. 7. Give normal location of apex beat of the heart and give diagnostic symptoms of its various displacements. 8. What are the more common causes of ascites and from what other abnormal conditions must it be differentiated? 9. Give differential diagnosis of measles and scarlet fever, and treatment of the latter. 10. What are the symptoms, prognosis and treatment of hysteria?

Book Notices

THE HEALTHY MARRIAGE. A Medical and Psychological Guide to Wives. By G. T. Wrench, M.D., B.S. Cloth. Price, $1.50 net. Pp. 300. New York: Paul B. Hoeber, 1914.

SEXUAL ETHICS: A STUDY OF BORDERLAND QUESTIONS. By Robert Michels, Professor of Political Economy at the University of Basle. Cloth. Price, $1.50 net. Pp. 296. New York: Charles Scribner's Sons, 1914.

FOR GIRLS AND THE MOTHERS OF GIRLS. A Book for the Home and School Concerning the Beginnings of Life. By Mary G. Hood, M.D., with an Introduction by Sarah Louise Arnold. Cloth. Price, $1 net. Pp. 157, with illustrations. Indianapolis: Bobbs-Merrill Company, 1914.

TEN SEX TALKS TO BOYS (10 YEARS AND OLDER). By Irving David Steinhardt, M.D., Instructor in Clinical Surgery, Cornell University Medical School. Cloth. Price, $1 net. Pp. 187. Philadelphia: J. B. Lippincott Company, 1914.

TEN SEX TALKS TO GIRLS (FOURTEEN YEARS AND OLDER). By Irving David Steinhardt, M.D., Instructor in Clinical Surgery, Cornell University Medical School. Cloth. Price, $1 net. Pp. 193, with 6 illustrations. Philadelphia: J. B. Lippincott Company, 1914.

WOMEN AND MORALITY. By a Mother. Men and Morals. By a Father. The Sexes Again. By C. Gasquoine Hartley. Introduction by Wallace Rice. Cloth. Price, $1 net. Pp. 102. Chicago: The Laurentian Publishers, 1914.

TEACHING SEX HYGIENE IN THE SCHOOLS. By E. B. Lowry, M.D. Cloth. Price, 50 cents. Pp. 94. Chicago: Forbes & Co., 1914.

It is to be expected that the widespread discussion of sex questions and sex instruction that has been prevalent during the past two or three years would produce a considerable amount of literature. The books listed above represent a small portion of the recent output and are typical publications on this subject. The entire question of sex relations is so complicated by personal, religious and conventional prejudices and so modified by experience, temperament and point of view as to make dogmatic assertions on this subject particularly dangerous. What the outcome of the present agitation will be, as far as modification of our ideas as to sex relations, education of children and social conventions, it is impossible to say. Perhaps the wisest plan to follow is simply to chronicle the appearance of different books on this subject, leaving it to each individual to select the literature which comes nearest to meeting his needs.

"The Healthy Marriage" appears to be an earnest effort to supply the lay reader with a moderate, sane, practical book which will furnish the information needed without sensationalism or exaggeration. Besides advice on marriage, the book contains much valuable information on exercise, personal habits and the securing of sanitary surroundings. It can be safely recommended by the physician to the patient desiring reliable information.

Michels' book is a frankly philosophic discussion of the problems involved in sexual relations. The point of view is essentially Continental, and probably many of the author's assertions and conclusions would be unacceptable to the average American reader.—The book is one for the student rather than for the public.

Dr. Mary G. Hood's book "For Girls and the Mothers of Girls" is an elementary presentation for girls of the school

age. There have been many efforts in this direction, each of which has had its merits and weaknesses. Each writer on this subject has her own conception of the manner in which it should be presented, and by the same token probably each writer finds readers who are particularly attracted by the manner of presentation. Perhaps in the future we may be able to standardize our ideas of instruction on these subjects. To-day the number of books in this field is the best evidence of diversity of opinion as to the best method of presentation.

Dr. I. D. Steinhardt has made two contributions to this field, one for girls and one for boys. The books originated in talks to audiences of Jewish boys and girls in New York. They are in the form of ten talks or lectures, each followed by ten review questions covering the subject matter.

The little volume on "Women and Morality" contains three essays, the first two being anonymous and the third by Mrs. Walter Gallichian. The three essays originally appeared in the *English Review* for July, August and September, 1913. The discussion, which is essentially from an English point of view, is interesting on account of the brilliancy of method rather than for any real contribution to the problems involved.

Dr. Lowry's "Teaching Sex Hygiene in the Public Schools" does not adhere closely to the title, but touches on many related questions such as "White Slavery," "The True Relations between Mothers and Daughters," "The Dangers to Boyhood," "Blindness of Parents," etc. Several of the chapters appeared first as separate articles in different medical journals. The book impresses the reader as being hastily and rather carelessly put together.

PRACTICAL SANITATION. A Handbook for Health Officers and Practitioners of Medicine. By Fletcher Gardner, M.D., Captain Medical Corps, Indiana National Guard, and James Persons Simonds, B.A., M.D., Professor of Preventive Medicine and Bacteriology, Medical Department, University of Texas. Cloth. Price, $4. Pp. 403, with 37 illustrations. St. Louis: C. V. Mosby Company, 1914.

The authors have endeavored to provide, within the confines of a single, moderate-priced volume, a plain, non-technical presentation of the duties of the local health officer and to furnish information for the health officer to meet any emergency which may arise. It is not intended for the specialist or the sanitarian who has access to a large library. The growing tendency of smaller towns and counties to provide for health supervision of some sort makes the need for such a work. The book is divided into three general parts, on epidemiology, general sanitation and laboratory methods. In the first part, after a general discussion of the nature of infection, chapters are given to the management of epidemics, isolation and quarantine, the construction and maintenance of isolation hospitals and camps, and disinfection. The different groups of diseases coming under the jurisdiction of the health officer are then discussed. Under the typhoid group, for instance, are considered typhoid, paratyphoid, mountain fever, amebic dysentery, bacillary dysentery and Asiatic cholera. The other groups discussed are the exanthemas group, the diphtheria group, the plague group, the yellow fever group, the septic group, the tuberculosis group, the typhus group, the meningitis group, the venereal group, the ringworm group, the conjunctivitis group and the animal parasites group. This method of grouping contagious diseases in classes of diseases requiring similar treatment and management has obvious advantages. Under each disease, the cause, pathology, method of transmission, diagnosis, quarantine and disinfection methods and methods for community prevention are considered. The section on general sanitation discusses the organization of sanitary forces, methods of keeping records, methods of inspecting schools, factories and institutions, methods for carrying on special campaigns against rats, flies, mosquitoes, etc., and methods for the disposal of sewage and garbage and for the inspection of water and milk. The third part of the book is devoted to a description of practical laboratory methods. The introduction is by Dr. J. N. Hurty, Health Commissioner of Indiana.

Miscellany

Foot-and-Mouth Disease

Foot-and-mouth disease (see editorial on same subject, this issue, page 1766) is also known as epizootic aphtha, aphthous fever, infectious aphtha, aphthae epizooticae; *Maul-und-Klauenseuche, Aphthenseuche, Mäulfaule,* by the Germans; as fièvre aphtheuse, cocotte, by the French; and as *afta epizootica, febbre aftosa,* by the Italians. The contagious nature of foot-and-mouth disease was recognized before 1764, but until the growth of bacteriology it was associated with spoiled feed, bad air and various climatic influences. Various organisms, including bacteria or protozoa, have been suggested as the cause of the disease. In 1897 Löffler and Frosch showed that the contagious material passed through porcelain filters, and therefore put it in the class of filterable viruses. Recently Siegel has connected with the disease certain cocci, which he found in the blood of infected animals, in the vesicles, in the plasma, and in the heart muscle, and his findings have been duplicated by others. The disease infected eastern Europe, and in various wars was spread to western and central Europe. It has occurred at periodic intervals, when it usually has spread over all the countries, and after two or four years subsided. Great Britain, Germany, France, the Netherlands, Austro-Hungary, Russia, all have in turn suffered from it. The loss from this disease in England in 1883 was estimated at $5,000,000. In an epidemic in Germany in 1890, about 500,000 cattle, 250,000 sheep and 150,000 swine were infected with it.

The disease reached Canada through an importation of cattle from England to Montreal in 1870; from this point it spread to the New England states, New York and New Jersey, when this large epidemic was effectively checked. In 1902 an outbreak threatened great danger, but following the destruction of all infected and exposed herds, together with proper quarantine measures, the disease was limited to four of the New England states. At various times there have been small outbreaks following the importation of infected animals. The last large outbreak to occur in the United States was in 1908. At this time the disease was discovered in some Pennsylvania cattle. Investigations by the government showed that cow-pox vaccine virus, imported from a foreign country, was contaminated with foot-and-mouth disease. This vaccine was employed for the production of vaccine in calves which then became infected with foot-and-mouth disease. Another concern purchased some of the contaminated vaccine and infected its own calves. The calves of the second firm were then sold in the open market and started the epidemic; those of the first firm having served their purpose for the production of vaccine had been killed. The government immediately had all the vaccine recalled, and using the usual vigorous measures, was able to check and eradicate the epidemic. This particular instance cost the federal government $300,000. There are no records which show transmission to man of foot-and-mouth disease by means of small-pox vaccine, and it is extremely doubtful if such transmission is possible by the ordinary method of vaccination.

In the epidemic of 1908 Michigan, Pennsylvania, New York and Maryland were affected. "Since that time," says Eichhorn, of the Bureau of Animal Industry, "this country has been free from the disease and with the quarantine prescribed by law for imported animals and the present requirements of testing all importations of vaccine lymph for possible contaminations of foot-and-mouth disease, there appears to be little danger of the introduction of the disease into this country" (Reference Handbook of the Medical Sciences, Iv, 504).

In the present epidemic of foot-and-mouth disease, which concerns practically the entire Mississippi Valley, the chief interest is centered in the outbreak in the large Chicago Stock Yards. Up to November 9—quarantine of the stock yards having been instituted November 7—912 head of cattle

valued at $52,000 and 160 hogs valued at $2,000 were slaughtered and buried in quicklime in the stock yards. The work of disinfection consisted of a liberal use of creosote, lime and phenol (carbolic acid). Ten states are under federal quarantine and two others are about to be quarantined. It was found unnecessary to slaughter any of the prize stock in the exhibit at Chicago, all of them being quarantined and under treatment; none of them were affected with the disease in a severe form. The history of the epidemic as given by Secretary Houston is as follows: The disease appeared at Niles, Mich., about October 12, and went to the Chicago Stock Yards in a shipment of hogs. From the stock yards it was carried broadcast for over two weeks before steps were taken to limit it. The present epidemic covers five times as much territory as any other former epidemic. Railroads are disinfecting all stock cars. The embargo over the Chicago Stock Yards will cover a period of one week.

In many of the European countries the spread of the disease is checked by allowing all the animals in a single herd to be infected, holding them under quarantine and waiting for them all to die or to recover. More recently it has proved of advantage to destroy all animals of the infected herd and those that have been exposed, at the same time instituting a rigid quarantine and disinfecting the buildings in which the diseased animals have been kept.

The disease is rarely fatal in man, but has been known to be fatal to children. It is not carried by meats but may be transmitted by milk, butter or cheese. Milk that is not pasteurized and cheese that is not made from pasteurized milk may be carriers of the disease.

First Aid to Those Overcome by Mine Gases, Electric Shock, Etc.

The Bureau of Mines, in publishing the report of the Committee on Resuscitation from Mine Gases (Technical Paper 77), recommends the following procedure in giving first aid to those in need of artificial respiration:

"In case of gassing, remove victim at once from gaseous atmosphere. Carry him quickly to fresh air and immediately give manual artificial respiration. Do not stop to loosen clothing. Every moment of delay is serious.

"In case of electric shock, break electric current instantly. Free the patient from the current with a single quick motion, using any dry non-conductor, such as clothing, rope or board, to move patient or wire. Beware of using any metal or moist material. Meantime have every effort made to shut off current.

"Attend instantly to the victim's breathing. If the victim is not breathing, he should be given manual artificial respiration at once.

"If the patient is breathing slowly and regularly, do not give artificial respiration, but let Nature restore breathing unaided.

"In gas cases, give oxygen. If the patient has been gassed, give him pure oxygen, with manual artificial respiration.

"The oxygen may be given through a breathing bag from a cylinder having a reducing valve, with connecting tubes and face mask, and with an inspiratory and expiratory valve, of which the latter communicates directly with the atmosphere.

"No mechanical artificial resuscitating device should be used unless one operated by hand that has no suction effect on the lungs.

"Use the Schäfer or prone-pressure method of artificial respiration. Begin at once. A moment's delay is serious.

"Continue the artificial respiration. If necessary, continue two hours or longer without interruption until natural breathing is restored. If natural breathing stops after being restored, use artificial respiration again.

"Do not give the patient any liquid by mouth until he is fully conscious.

"Give him fresh air, but keep his body warm.

"Send for the nearest doctor as soon as accident is discovered."

A limited number of copies of the report may be obtained free from the Bureau of Mines, Washington, D. C.

Medicolegal

Practicing Medicine Without a License Punishable Under Statute

(State vs. Nelson (La.), 65 So. R. 893)

The Supreme Court of Louisiana says that the bill of information filed against the defendant charged him with practicing medicine without a license. He filed a motion to quash the information on the ground that no provision is contained in the statute to punish those who practice without a license. The motion was granted and the Supreme Court affirmed the judgment of the lower court. A rehearing was obtained, and on the rehearing the judgment was reversed.

In its first decision the Supreme Court held that the defendant's contention that Act 49 of 1894 is unconstitutional because its title is not broad enough to cover a prosecution for practicing medicine without a license, was not well founded, as the title of the act recites that it is an act "to regulate the practice of medicine" and "to provide punishment by fine or imprisonment or both." But the court further held that an act, amending an act which has already been repealed, is absolutely without force as the amendment has no foundation on which to rest; and, as Section 14 of Act 49 of 1894 had been repealed by Act 13 of 1898, the attempt to amend Section 14 of Act 49 of 1894 by the passing of Act 244 of 1908 was abortive, and did not have the effect of giving any force to Section 14 of Act 49 of 1894. On the rehearing, however, the court holds that the objection that a statute, purporting to amend and reenact a section of an existing statute, is inoperative because the section in question has already been amended and reenacted by, and merged in, another statute, will not be sustained where the title of the amendatory statute not only declares the purpose to amend, but goes farther and specifically and affirmatively declares the object to be accomplished by the amendment. Act 244 of 1908 is not, therefore, obnoxious to the objection that its object is not declared in its title, or to the objection that it is an ineffectual attempt to amend a nonexistent provision of law, since its title gives it a status as independent legislation.

The title of Act 16 of 1912, at which, also, the defendant's motion to quash was directed, merely declares its object to be to "amend" Sections 5, 11 and 14 of Act 49 of 1894, entitled "An Act to regulate the practice of medicine," etc. The declaration is sufficient as to Sections 5 and 11, but insufficient as to Section 14, which had previously been amended and reenacted by Act 13 of 1896, and superseded by Act 244 of 1908. Another objection, in so far as Section 14 is concerned, is that the title of Act 16 of 1912 refers to criminal prosecutions only, whereas the body of the act provides also a civil proceeding by injunction.

Liability for Patient Under Own Physician Getting Poison in Hospital—Evidence

(Broz vs. Omaha Maternity & General Hospital Association (Neb.), 148 N. W. R. 575)

The Supreme Court of Nebraska affirms a judgment for $7,000 damages against the defendant hospital association for the death of a patient from poison. The patient, who suffered intermittent mental infirmities, was under the care of his own physician. In the absence of his physician, wife, relatives and friends, he found and took some mercuric chlorid tablets. The court says that the pleadings, evidence and circumstances justified a finding that the patient was admitted to the hospital under an implied obligation that he should receive such reasonable care and attention for his safety as his mental and physical condition required. The physician employed by him did not relieve the hospital of responsibility for negligence on its part, if any. The patient was under the personal observation of his physician only a small portion of the time. In the latter's absence and drug emergencies he was under the care of the nurses and the intern who were

employees of the hospital. Within the scope of their employment their employer was legally responsible for their negligence to a patient. The patient's physician did not manage or control the hospital, and he was not liable for the negligence of hospital nurses and interns, if he had no connection with any negligent act.

At night, during the absence of the patient's physician, it was clearly the duty of the hospital intern, who was a physician, and the nurses in charge, to give such treatment and attention as the emergency demanded, when known. The defendant was prepared for such an exigency. One of the purposes of a hospital in assuming control of a patient, for private gain, is to furnish promptly modern equipment, facilities and treatment. To avail himself of these advantages the patient left his home and intrusted himself to the care of the defendant. The duties which such a hospital owes to a patient are commensurate with the responsibilities assumed. The approved rule is that a patient is generally admitted to a hospital, conducted for private gain, under an implied obligation that he shall receive such reasonable care and attention for his safety as his mental and physical condition, if known, may require.

It was said that the physician employed by the patient instructed the defendant to allow him the freedom of his room and the halls, that employees of the defendant did so, and that it was not chargeable with negligence for complying with instructions. The directions of the physician should be considered with the duty of the hospital to give the patient such reasonable care and attention for his safety as his mental and physical condition required. The defendant was not instructed to allow the patient, who had been suffering from a fitful mental disorder, access to a hospital sinkroom, where poison, in the form of medicine tablets, was kept. Whether there was negligence in allowing the patient access to such a place in the night, while unattended, was a question for the jury.

Where a hospital patient takes poison at night in the absence of his physician and friends, while he is under the exclusive care of nurses and interns, harsh and technical rules of evidence should not be enforced to exclude proper testimony tending to throw some light on material facts which, on account of the pecuniary interests and the reputation of the hospital, there might be a temptation to conceal.

In considering the reasonableness of the amount of damages awarded, it is held that a mere fitful or temporary mental disorder will not be presumed to continue.

What Constitute Communications to Physicians and Waivers of Privilege

(Ausdenmoore et al vs. Holzback (Ohio), 106 N. E. R. 41)

The Supreme Court of Ohio holds that there was no error in sustaining the objection of plaintiff Holzback to certain physicians testifying for the defendant as to a diagnosis they had made of the plaintiff's physical condition. Section 11494 of the General Code of Ohio provides: "The following persons shall not testify in certain respects: . . . Or a physician, concerning a communication made to him by his patient in that relation, or his advice to his patient." The court holds that a communication by the patient to the physician may be, not only by word of mouth, but also by exhibiting the body or any part thereof to the physician for his opinion, examination, or diagnosis, and that that sort of communication is quite as clearly within the statute as a communication by word of mouth. But the same section further provides that the physician may testify by express consent of the patient, and if the patient voluntarily testifies the physician may be compelled to testify on the same subject. This qualifying clause the court holds to mean that there cannot be a waiver except in two ways: First, by an express consent of the patient, or by the patient taking the stand and voluntarily testifying as to the things and matters communicated to his physician, the latter being held to be in effect an express waiver as to that physician. There was neither form of waiver in this case.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, St. Louis, Dec. 28-30.
American Physiological Society, St. Louis, Dec. 27-30.
Amer. Public Health Association, Jacksonville, Fla., Nov. 30-Dec. 5.
Medical Society of Hawaii, Honolulu, Nov. 28-30.
Society of American Bacteriologists, Philadelphia, Dec. 29-31.
Southern Surgical and Gynecological Assn., Asheville, N. C., Dec. 15-17.
Western Surgical Association, Denver, Dec. 18-19.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Fortieth Annual Meeting, held at Cincinnati, Oct. 27-29, 1914

The President, DR. D'ORSAY HECHT, Chicago, in the Chair

Factors Which Determine the Advisability of Prostatectomy

DR. WILLIAM F. BRAASCH, Rochester, Minn.: With stone in the bladder it is usually advisable to remove the stone and drain the bladder for a time prior to prostatectomy. Stone in the bladder may cause temporary enlargement of the prostate. Pyelonephritis is a frequent complication of bladder drainage and a strong resistance should be established before attempting operation. The renal condition is better estimated prior to operation by clinical evidence than by laboratory tests. Cystoscopic examination, while valuable in certain conditions, may be the cause of harm if used as a routine procedure. Urethroscopic examination is occasionally of greater value than cystoscopic examination. It is particularly valuable with intra-urethral hypertrophy and with carcinoma.

DISCUSSION

DR. WILLIAM N. WISHARD, Indianapolis: Twenty-four years ago I emphasized the importance of preliminary drainage in cases of prostatic obstruction where bladder infection existed and where kidney function was impaired.

DR. FRENCH CARY, Chicago: Cystoscopic examination is of assistance in determining hypertrophy in different portions of the prostate. All cases should be given a functional test before operation and if the test is low, drainage should be instituted.

DR. CHARLES E. BARNETT, Fort Wayne, Ind.: In cases of malignant prostate, if the gland is very large and must be taken out, it is wrong to cystoscope the patient and traumatize the tissues, thus infecting the patient still more.

DR. BRANSFORD LEWIS, St. Louis: Many cases of prostatic obstruction are not improved by operation. They are cases of acute, almost complete, obstruction from contracture which can be relieved by palliative measures.

DR. GUSTAV KOLISCHER, Chicago: There are cases in which prostatectomy is indicated, although retention of urine may not be very acute, and there is no hyperdilatation of the bladder, and no infection. One condition which frequently is overlooked is an infiltrating cystitis that extends to the bladder wall from the mucosa and perivesical tissue. If we drain the bladder we are not going to influence the infiltration which is an infectious, inflammatory infiltration of the two coats of the bladder wall. There is only one way of relieving this condition, and that is to make an extensive incision, stripping this infiltrated tissue just as we deal with an infiltrating phlegmon in any other part of the body.

Hemolysis, Following Transfusion of Blood

DR. BERTRAM B. BERNHEIM, Baltimore: In eight hundred reported transfusions there were fifteen instances of macroscopic hemolysis. In these fifteen cases there were eleven recoveries and four deaths. No hemolytic tests were made in three of the instances where death occurred. In the fourth case tests were made and it was known that the donor's cells were slightly agglutinated by the patient's serum, but since agglutination is an entirely different process from hemolysis, and since no other donor was available, it was considered fairly safe to use this donor, and a fatality occurred. Tests were made in eleven of the fifteen recoveries, and in nine

instances hemolysis was prognosticated. The dangers of transfusion are immediate and delayed. The immediate is acute dilatation of the heart consequent on an inflow of blood of such force and rate that the recipient's heart is overwhelmed. The delayed danger is that of hemolysis, which can be prognosticated in practically every instance by careful tests prior to transfusion. In emergencies no thought should be given to hemolysis or anything else. Far better is it to transfuse immediately and save a patient from imminent death, running the slight risk of a late hemolysis, than to temporize with tests which require at least two hours for their proper performance. Where, however, there is time, and in the majority of instances such is the case, failure to have the tests made is an inexcusable blunder.

Radium in Treatment of Cancer of Uterus

Dr. J. Louis Ransohoff, Cincinnati: Radium is of undoubted value in cancer of the uterus to control hemorrhage, discharge and pain, and in causing the local disappearance of the disease. If possible, radium should be used in all cases of inoperable cancer of the uterus when the patient is not in the extreme stage of emaciation and cachexia.

Renal Infections from Bacteriologic Point of View

Dr. Irvin S. Koll, Chicago: The accepted three routes of infection are the lymphogenous, hematogenous and urogenous. Knowledge of the lymph channels draining from the intestinal tract into the kidney accounts for the frequency of infections of the kidney associated with acute and chronic gastro-intestinal disturbances. Infections through the ureter may be either extra- or intra-ureteral. Of particular importance is the pyelitis associated with pregnancy, the frequency of which is estimated as high as 20 per cent. Of late the hematogenous route seems to have been neglected in the consideration of the carriage of bacteria to the kidney. The circulatory system is a carrier of bacteria of as great importance as the lymph stream.

DISCUSSION

Dr. Hugh Cabot, Boston: The milder grades of infection of the kidney, commonly miscalled pyelitis, are extraordinarily more common in females than in males, even among children. This should not be regarded as accidental, and yet this has never been explained satisfactorily.

Dr. Edward C. Rosenow, Chicago: Primary pyelitis is rare. It is a pyelonephritis or nephritis infecting the pelvis of the kidney secondarily. The results I have had from the intravenous injections of streptococci make me feel strongly that given a case of acute pyelitis or pyelonephritis, no matter what the organism is primarily, it is a hematogenous infection that primarily infects the capillaries and secondarily infects the pelvis of the kidney.

Dr. Emil Ries, Chicago: Cases of so-called pyelitis said to have been cured were really not cases of pyelitis at all, but cases of pyelonephritis. Cases of so-called pyelitis of pregnancy came under my observation rather frequently in years gone by. They were treated on the conservative plan, and the vast majority of the patients got well.

Dr. Bransford Lewis, St. Louis: Lavage, using a fluid that has certain medicaments incorporated in it that have germicidal properties, will cure infections of the renal pelvis.

Gastric and Duodenal Ulcer

Dr. C. W. Dowden, West Baden, Ind.: Of 425 cases of gastric and duodenal ulcer, 170, or 40 per cent., bore a definite relation to some infection, and I conclude that this is the chief etiologic factor. Ulcers pass through a stage which is distinctly medical, and if diagnosed at this time are amenable to treatment. Surgical ulcers are those that have involved more than one coat of the gastric mucosa. Medical treatment at this time is worse than useless because the patient mistakes temporary relief for cure. An active ulcer in its early stage is best treated by absolute rest to the stomach, controlling painful peristalsis by antispasmodics, and by rectal feeding until the acute stage has passed. All foci of infection, no matter where located, should be removed.

DISCUSSION

Dr. Charles D. Aaron, Detroit: In the treatment of gastric ulcer, when it is complicated by vagotonia, the treatment of both conditions will give a better result than if we treat only the ulcer. We have all had cases of healed ulcer of the pylorus, with contraction or stenosis of the pylorus, dilatation of the stomach, visible peristalsis when the stomach was endeavoring to empty itself. We operate and what do we find? Not an ulcer but obstruction of the pylorus. A gastro-enterostomy is done and the patient recovers. Why in such cases do we not have chronic ulcer of the stomach?

Dr. Charles A. L. Reed, Cincinnati: Little regard has been paid to one of the most important etiologic factors, namely, chronic intestinal stasis. Too little attention is being given to the conditions within the stomach proper, to the nerve conditions back of the stomach action, and to the various distinctly local causes as they apply directly to the pylorus or to the duodenum. In the majority of cases the difficulty lies in favor of normal physiologic drainage of the duodenum and stomach, thus inducing infection which in turn induces ulceration. I have demonstrated this in a considerable number of cases. I have latterly tried to establish drainage in the lower segment of the intestinal tract, and with what results? The ulcer disappears.

Dr. C. W. Dowden: I am fully in accord with everything Dr. Reed said as to the important rôle intestinal stasis plays in the production of gastric and duodenal ulcer.

Colon Stasis

Dr. Joseph R. Eastman, Indianapolis: Treatment directed at the relief of chronic colitis will affect also the attendant ptosis and stasis and likewise the associated plastic peritonitis. Properly performed short-circuiting operations by the improved drainage which they provide relieve chronic colitis and indirectly affect favorably the other factors of stasis — ptosis and peritonitis. The feces are to a considerable extent made up of epithelial debris, intestinal secretions and dead and living bacteria, and these things mixed with food residue under the influence of contractions of the cecum rise in the ascending colon. But this contraction is not constant. The empty cecum is in repose; it does not contract. It is only awakened when the small intestine empties into the cecum its liquid contents. If contractions are not produced in this way, the feces have no tendency to be evacuated. The colon becomes lazy and atonic and obstipation is increased by antiperistalsis. It is for this reason that ileosigmoidostomy may be said to be conceived falsely. By this operation the liquid contents of the small intestine are not permitted to enter the cecum to bring about contraction. It is for this reason that Lane and others have been obliged to reoperate after ileosigmoidostomy and deal with an enormous fecal accumulation in the cecum and ascending colon. Typhlo-sigmoidostomy or typhlo-proctostomy are not open to the above criticisms, for in these operations the fluid contents of the small intestine are permitted to enter the cecum. In a case of simple constipation concerning only the left colon, ileosigmoidostomy may be of some benefit, but it is debatable whether such a condition is not better treated by non-surgical means. Bergmann first anastomosed the cecum to the sigmoid for volvulus of the ascending colon and the operation in cases of stasis is not indicated unless membranes or adhesions so fetter the colon as to make such an exclusion necessary because of incompetency or obstruction. If the colon is obstructed at the hepatic or splenic angles alone, then colocolostomy, as practiced by Payr, which excludes these flexures alone is of obvious use. Sigmoido-proctostomy for the exclusion of redundant sigmoid may often be employed with advantage to supplement the anastomosis of the caput coli to the rectum or the redundant sigmoid may be treated by the Troyanoff-Winiwarter anastomosis between the loops of the sigmoid or eventually the redundant colon may be resected. At any rate, after typhlo-proctostomy, coils of redundant sigmoid cannot with safety be left above the stoma. Montprofit's operation of dividing the terminal ileum and anastomosing both ends end-to-side with the sigmoid represents no improvement over

simple typhlo-proctostomy. Here an attempt is made to drain the excluded cecum in defiance of the ileocecal valve through the short stump of the ileum, whereas this can be accomplished more simply and more completely by a large stoma in the floor of the cecum.

DISCUSSION

DR. JOSEPH RANSOHOFF, Cincinnati: Colon stasis does exist, but in a large number of individuals it produces no deleterious results whatever. In a very small number of cases colon stasis is followed by pathologic conditions. It has been said that idiopathic epilepsy may be brought on by colon stasis. It is a tremendously far cry from colon stasis to epilepsy. Idiopathic epilepsy is a condition which begins exceedingly early in life in the form of *petit mal*. I cannot believe that there is any possible connection between colon stasis and epilepsy.

DR. WILLIAM SEAMAN BAINBRIDGE, New York City: Lane emphasizes that nineteen cases out of twenty of intestinal stasis ought never to be operated, and yet men are saying that Lane performs colectomy, ileocolostomy, etc., on this class of patients. He does not.

DR. LOUIS J. HIRSCHMAN, Detroit: Postural treatment, special localized exercise, etc., will cure many cases of intestinal stasis. Give these patients Russian oil for months; it cures many of these patients. When they do not respond to these methods of treatment, operate.

DR. J. RAWSON PENNINGTON, Chicago: Colon stasis is a symptom, not a disease. The treatment for colon stasis is to remove the obstruction and then the stasis disappears. It does not make much difference what operation you do.

Use of Abderhalden Reaction with Normal and Pathologic Serums

DR. ELLISON L. ROSS and DR. H. DOUGLAS SINGER, Kankakee, Ill.: Our results, briefly, are as follows: 1. Paretic serum: With 2 washings 10 serums all gave positive results; with 3 washings 6 were all positive; with 5 washings 8 of 11 were positive; with 10 washings 1 of 3 was positive; with 11, 2 of 8; with 13, 14 and 15 washings none of 20 were positive. 2. Normal serum: With 2 washings 8 were all positive; with 3 washings 1 of 4 was positive; with 5, 8, 10, 11, 13, 14 and 15 washings a total of 34 serums all gave negative results. It was also demonstrated that the water used for the washing of substrates contained material which underwent lysis when mixed with blood serum. Hence, in order to determine whether there is any specific difference between the ferments present in general paresis and the normal state, the water used for the fifth and eighth washings was concentrated and used as a substrate. In spite of the failure of normal serum to digest brain substrate which had been washed 5 times or more, normal serum caused lysis of the material in this wash-water fully as markedly as did that from cases of general paralysis. From these facts it is evident that no interpretation of the results of Abderhalden tests with tissue substrates is justifiable unless the same (not merely similarly prepared) substrate has been proven to give negative results with a series of normal serums..

Modern Syphilis Therapy and the Central Nervous System from a Biologic Point of View

DR. CARL D. CAMP, Ann Arbor, Mich.: The treatment of tabes and paresis is probably the most important part of the treatment of syphilis of the nervous system. These diseases, while due to syphilis, have other determining factors. Intravenous injections of salvarsan have an effect in some cases. Intradural injections of salvarsan have greater effect on the spinal fluid findings but are distinctly dangerous. The Swift-Ellis treatment seems to vary in effectiveness with different observers; the more conservative do not find any greater improvement than with intravenous injections. The rationalé of this treatment is not very clear. The use of mercury by injections is probably as effective as any method of treatment and has less possibility of harm. Cases of tabes dorsalis frequently become stationary under mercurial treatment, the spinal fluid findings either showing improvement or else no change.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

November, VIII, No. 5, pp. 321-384

1 Weights and Measurements of Infants and Children in Private Practice Compared with Institution Children and Schoolchildren. R. G. Freeman, New York.
2 *Hereditary Syphilis as Social Problem. P. C. Jeans and E. M. Butler, St. Louis.
3 Splenohepatomegaly Gaucher. Report of Three Cases. M. S. Reuben, New York.
4 Subacute Atrophy of Liver. E. C. Dickson, San Francisco.
5 *Tuberculous Lesions in Infants and Young Children, Based on Post-Mortem Examinations. M. Wollstein and F. H. Bartlett, New York.
6 Recurrent Meningitis, Due to Lead, in Child of Five Years. H. M. Thomas and K. D. Blackfan, Baltimore.

2. **Hereditary Syphilis.**—Jeans and Butler emphasize that as a social problem, hereditary syphilis assumes relatively large proportions, one patient often representing a number of individuals needing treatment. Parents are frequently indifferent and fail to continue treatment. They also frequently fail to see the importance of having Wassermann tests made on the other children of the family, who may seem perfectly well, but who may have syphilis. In the case of such parental indifference the authors suggest that such tests or treatment should be enforced.

Hereditary syphilis is more frequent in illegitimate than legitimate children. The mortality is higher in illegitimate syphilitic infants than legitimate syphilitic infants. Hereditary syphilis in St. Louis is from two to three times as frequent in the colored as in the white race. The frequency of hereditary syphilis is greater among the infants in our clinic than among the older children. The waste in potential life by miscarriages and deaths in syphilitic families is twice as great as in non-syphilitic children.

Thirty-three per cent. of the syphilitic children over 1 year examined by Jeans and Butler had permanent disabling damage. Eighteen per cent. of the syphilitic children over 1 year had long-continued temporary disabling damage. There is about five times as much feeble-mindedness in syphilitic families as in non-syphilitic families. The mortality for artificially fed syphilitic infants is five times as high as for breast-fed syphilitic infants, not including deaths due to intestinal disturbances.

5. **Tuberculosis.**—An analysis of 178 cases of tuberculosis occurring in children less than 5 years of age (75 per cent. under 2 years) was made by Wollstein and Bartlett. In five instances the tuberculous lesions were found to be limited to the bronchial lymph-nodes, only one node being involved in each of three cases, and two and three nodes in the other two cases, respectively. These children were between 17 and 27 months old. The lesion was an active one in every case. There were two children in whom the tuberculous lesions were limited to one lung and the adjacent bronchial lymph-nodes. One of these was a 4-months-old girl, the other a boy of 3 years. One child, 20 months old, had but one other tuberculous focus besides that in the bronchial lymph-nodes. In this case several fingers were the seat of a dactylitis, apparently tuberculous. As examples of pulmonary tuberculosis with beginning generalization through the blood-stream, was an 18-months-old child in which there was tuberculosis of the lungs, bronchial lymph-nodes and spleen, and another in which tubercles were found in the liver, spleen and pia mater, in addition to the lungs. The presence of recent tuberculous ulcers in the intestines in a boy 18 months old with an older infection in the lungs and bronchial glands suggested infection of the intestine through swallowing of tubercle-bacilli-laden sputum rather than blood generalization. By far the greater number of cases in this series fall into the group of primary pulmonary infection with markedly generalized tuberculosis by way of the blood. There were 134 cases of this kind, the lesions in the lungs and bronchial lymph-nodes being older than those in any other organ.

The lungs were free from tuberculosis in only 14 of the 178 cases. Calcareous degeneration was found in the lungs only five times. Pulmonary cavitation was present in forty-three children. One child presented cheesy tubercles in one mesenteric lymph-node, without any other tuberculous focus in the body. In one infant, 9 months old, the mesenteric and cervical nodes were equally large and cheesy, while one deep cervical node contained a calcareous area; one tuberculous ulcer was found in the jejunum. In two cases the cervical lymph-nodes showed as old a tuberculous focus as that found in the mesenteric nodes and intestines, while the liver and spleen and lungs contained but few young, miliary tubercles. Thirteen other cases presented the oldest lesion in the mesenteric lymph-nodes, whence more or less completely generalized infection had occurred. One child of 2 years, besides cheesy tubercles in several mesenteric glands, had miliary tubercles in the liver, peritoneum and pia mater. The involvement of the pia mater before that of the lungs and spleen is noteworthy. Six of the thirteen cases in which the mesenteric glands contained the oldest lesion were accompanied by tuberculous peritonitis. With one exception, a child of 7 months, all the cases of peritonitis occurred in children 21 months to 4 years of age.

There were only 14 cases in which the lungs were not involved. In the entire series of 178 cases there were only 9 in which the bronchial lymph-nodes contained no evidence of tuberculosis. In three the lungs were also free. In the remaining six there were tuberculous lesions in the lungs, but the primary focus was in the gastro-intestinal tract. The mesenteric lymph-nodes, on the other hand, were the seat of a tuberculous lesion in 113 of the 178 cases. In only 17 of these 178 cases were the mesenteric gland lesions the most advanced in the body, and in 4 of the 17 the intestines were not involved. Tuberculous meningitis occurred in 69, or 38 per cent., of these children. The distribution of the lesions in these cases shows that the younger infants tend to have a larger number of viscera involved in the tuberculous process, while in the older children meningitis may follow a limited infection. The younger infants have a more generalized tuberculosis and the older children have a more localized infection.

The most generalized cases had tubercles in the skin, myocardium, peritoneum, mesenteric glands, intestines, kidneys, liver, spleen, bronchial glands, lungs and pia mater. This occurred in two infants, 3 and 5 months of age. Of these sixty-nine cases of meningitis, three were of intestinal origin: The largest number of cases were of inhalation origin, as shown by the large percentage of cases in which the pulmonary lesions were the most advanced in the body. The absence of tuberculous lesions from the lungs in fourteen cases and the presence of tuberculous lesions in the bronchial lymph-nodes in seven of these seems to show that it is possible for the tubercle bacillus to pass through the lungs without localizing there.

American Journal of Orthopedic Surgery, Philadelphia

July, XII, No. 1, pp. 1-200

7 *Scoliosis. J. Calve, Berck, France.
8 Criticism of Paradoxic, Rotation of Physiologic Treatment of Scoliosis. A. M. Forbes, Montreal.
9 Mechanics of Plaster Corset in Lateral Curvature of Spine. E. G. Abbott, Portland, Me.
10 Relation of Bony Anomalies of Lumbar and Sacral Spine to Causes and Treatment of Scoliosis. Z. B. Adams, Boston.
11 *Bifurcation of Transverse Process of Fifth Lumbar Vertebra. M. S. Henderson, Rochester, Minn.
12 Treatment of Scoliosis by Abbott Method. H. L. Prince, Rochester, N. Y.
13 Frame for Standardizing Photographic Records of Scoliosis. C. H. Bucholz and R. B. Osgood, Boston.
14 So-Called "Sciatic Scoliosis." C. H. Bucholz, Boston.
15 Abbott Treatment of Rigid Scoliosis with Report of Sixty Cases. S. Kleinberg, New York.

7. **Scoliosis.**—With a child whose bony tissue is abnormally malleable, if the equilibrium of the forces of the spinal column is, from any cause, disrupted, Calve believes that the ensuing scoliotic deformation is perhaps readily explained. The rupture of the equilibrium is manifested by a curvature of the vertebral column. Because of the softness of the bony tissue, this curvature causes a deformation of the bodies of the vertebra, and this deformation makes the curvature permanent. The weight of the patient increases the curvature and rotation is started. The lateral deviation vertebra causes the bending of the rib, and this bending increases the rotation.

11. **Transverse Process of Fifth Lumbar Vertebra.**—Within the last two years, seventeen cases with bifurcation of the transverse process of the fifth lumbar vertebra have been recorded in the Mayo clinic. In this series there were three males, aged from 18 to 35, and fourteen females, aged from 9 to 45. Only three gave any symptoms which could be definitely attributed to the condition present. The remaining fourteen cases were discovered accidently in radiographing for other conditions such as lesions of the kidney and ureter, tuberculosis of the spine, congenital dislocation of the hip, etc. In four cases, the condition occurred on both side, seven on the right and six on the left. One case only was operated on; relief was but temporary.

American Journal of Public Health, Boston

October, IV, No. 10, pp. 819-963

16 Stream Pollution and Present Status of Controlling Legislation in California. C. G. Hyde, San Francisco.
17 Stream Sanitation in Illinois. P. Hansen, Springfield.
18 Stream Pollution in Indiana. J. A. Craven, Denver.
19 Prevention of River Pollution in Kansas. C. A. Haskins, Kansas City, Kan.
20 Stream Pollution in Louisiana. J. H. O'Neill, Denver.
21 Stream Sanitation in Maine. H. D. Evans, Denver.
22 State Control over Water Supply and Drainage Conditions in Maryland. R. B. Morse, Baltimore.
23 Laws Relating to Prevention of River Pollution in Massachusetts. X. H. Goodnough, Boston.
24 Sewage Disposal and Stream Pollution in Minnesota. F. Bass, Minneapolis.
25 Present Status of Waterways Sanitation in Montana. W. M. Cobleigh, Helena, Mont.
26 Stream Pollution and Sewage Treatment in Ohio. W. H. Dittoe, Columbus.
27 Conditions in Virginia with Respect to Stream Pollution. R. G. Messer, Richmond, Va.
28 *Pulmonary Anthracosis—Community Disease. O. Klotz, Pittsburgh.
29 Potassium Tellurite as an Indicator of Microbial Life. W. E. King and L. Davis, Detroit.
30 Is Pellagra Due to an Intestinal Parasite? B. W. Page, Lumberton, N. C.

28. **Pulmonary Anthracosis.**—Pulmonary anthracosis (not in coal miners) according to Klotz is distinctly an urban disease, and is proportionate to the smoke content of the air. The soot is inspired and lodges in the pulmonary alveoli, from which it carried by phagocytes into the lung tissue to become lodged in some portion of the pulmonary lymphatic system. Although small quantities of carbon deposit in the lung may remain without harm, yet the quantity accumulating in the dweller of the larger cities has an accompanying greater or less fibrosis, impairing the elasticity as well as altering the functional capacity of the organ. The distribution of carbon is fairly uniform in the parenchyma of the different lobes, but there is a considerable variation in the distribution of the pleural deposit. The interlobar diaphragmatic pleural surfaces show the least pigment. Moreover, less pigment is found in the grooves produced by the ribs of abnormal bands. Carbon tends to accumulate at the nodal points of junction of the lymphatic channels. The cellular migration of carbon may lead to unusual accumulations in certain areas, particularly well demonstrated in the deposit about chronic tuberculous lesions. Carbon deposits by inducing fibrosis tend to encapsulate chronic tuberculous foci. Pulmonary anthracosis by itself does not appear to stimulate the production of pleural adhesions. The actual amount of carbon present in the lungs of different individuals varies considerably and is dependent, in part at least, on the age, occupation, residence and condition of the lungs (emphysema, collapse, tuberculosis).

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

October, II, No. 4, pp. 223-294

31 *Propagation of Amebic Dysentery in Animals. A. W. Sellards and W. A. Baetjer, Baltimore.
32 Spirochete and Fusiform Bacilli in Various Lesions in Philippines. W. P. Chamberlain, New York.

33 Occurrence of Endamoeba Mortinatalium as Human Parasite. A. J. Smith and F. D. Weidman, Philadelphia.
34 *Bubonic Plague. Study of Typical Case. H. W. Wade and H. L. Staring, New Orleans.
35 Tuberculosis in Tropical Countries and Necessity for Greater Effort to Prevent It. I. W. Brewer, Taughannock Falls, N. Y.
36 Tropical Infectious Stomatitis; "Mal De Boca." N. Barlow, Cuyamel, Honduras.

31. **Propagation of Amebic Dysentery in Animals.**—The inoculation of infective material from virulent and also from distinctly avirulent cases of amebic dysentery directly into the cecum of kittens has given practically 100 per cent. of infections as compared with the usual result of about 50 per cent. of positive infections when virulent material is fed or injected per rectum. Injections by intracecal methods has been of service in: (1) The continuous propagation of a strain of dysentery. (2) The determination of the etiology of some obscure diarrheas. (3) It also offers certain advantages in diagnosis and in the study of the morphology and biology of the entameba.

Continuous propagation of one strain of dysentery through eleven passages, with a definite increase in virulence and with retention of the typical morphology, has been obtained. Especial attention was given to the following points: (1) Avoidance, as far as possible, of the accompanying bacteria by selection of mucus and blood practically free from fecal matter. (2) Inoculation of ameba obtained during the first day or two of symptoms. (3) Avoidance of diluting agents. (4) Avoidance of degenerated ameba by sacrificing animals, if necessary, and obtaining material from the lesions in the mucosa.

Sellards and Baetjer state that degenerative changes described by Hartmann and by Darling do occur in infected animals, especially in spontaneous stools and in autopsy material, but by sacrificing the animals they were able to demonstrate, in addition to these degenerated forms, an abundance of typical virulent ameba in the lesions in the mucosa. A careful consideration of the possibilities for the loss of a strain of ameba by accident during subpassage in animals leads them to feel definitely that the view, accepted at present, that the subpassage of amebic infection is self-limited, is definitely erroneous.

The clinical course of the disease in animals is strikingly similar to that of human infections: (1) The following features occur both in man and animals: (a) Acute fatal infections; (b) chronic infections with relapses and liver abscess; (c) development of the carrier state. (2) Certain features have not been reproduced in kittens; (a) intestinal amebiasis with extensive lesions without dysentery; (b) rare complications, such as brain and splenic abscess. (3) One important feature, bacterial septicemia, is common in animals, but has not been rigidly established in man. (4) The pathology in man and animals is similar in its fundamental characteristics, but differs in the exact distribution of the lesions. Some obscure diarrheas were investigated by Sellards and Baetjer which were characterized by continuous watery discharges without periods of intermission and with the presence of a few atypical ameba in the stools. From a morphologic standpoint, no etiologic importance could be attached to these ameba. Animal inoculations proved definitely, however, that these organisms were responsible for the symptoms.

34. **Bubonic Plague.**—Given a case in which there is a sudden onset with marked prostration, severe headache, vomiting, high temperature and early delirium, in which there is found a focus of lymphatic enlargement and tenderness, Wade and Staring urge that the possibility of *B. pestis* infection should be considered. The diagnosis of a case cannot, as a rule, be made positive without a bacteriologic study. This is to be carried out on material secured by gland aspiration, smears of which usually show numerous typical bacilli. The rather characteristic growth on different media, with the usual involution forms on salt agar, together with the demonstration of lack of motility and of the habit of producing acid without gas in dextrose media, make the diagnosis so certain that the death of guinea-pigs inoculated with gland material is merely confirmatory. The essential features of sections of the tissues in this infection are acute inflammatory infiltrations, dissolution of connective tissue, hemorrhage, edema and the presence of great numbers of the bacilli in the tissues along the invasion tract.

Boston Medical and Surgical Journal

October 29, CLXXI, No. 18, pp. 659-694

37 Relation of Industry to General Medicine. D. L. Edsall, Boston.
38 Relation of Insurance Companies to Industrial Diseases. F. L. Hoffman, Newark, N. J.
39 Occupational Diseases as Public Health Problem. H. Linenthal, Boston.
40 Some Fatal Surgical Errors. J. S. Horsley, Richmond, Va.

Colorado Medicine, Denver

October, XI, No. 10, pp. 361-402

41 Pathology of Early Gastric Carcinoma. L. B. Wilson, Rochester, Minn.

Journal of Experimental Medicine, Lancaster, Pa.

November, XX, No. 5, pp. 433-543

42 *Influence of Diet on Transplanted and Spontaneous Mouse Tumors. P. Rous, New York.
43 Bacterial Antiferments. J. W. Jobling and W. Petersen, New York.
44 Lipoids as Inhibitors of Anaphylactic Shock. J. W. Jobling and W. Petersen, New York.
45 *Effects of Extirpation of Thymus in Rats. A. M. Pappenheimer, New York.
46 Calcium Content in Bones and Teeth from Normal and Thymectomized Albino Rats. S. Morgulis and W. J. Gies, New York.
47 Influence of Various Substances on Growth of Mouse Carcinoma. M. S. Fleisher and L. Loeb, St. Louis.
48 Immunization Against Action of Substances Inhibiting Tumor Growth. M. S. Fleisher, M. Vera and L. Loeb, St. Louis.
49 Do Substances Inhibiting Tumor Growth Exert Retarding Influence on Regeneration of Skin? W. E. Leighton, St. Louis.

42. **Influence of Diet on Tumors.**—Rous' experiments show that large growths of certain transplanted rat and mouse tumors are checked in their development by underfeeding the host on a special diet. (Sweet's modification of one of Mendel and Osborne's foods) or in some cases by simple underfeeding. Two metastasizing mouse tumors are instances in point. They stopped growing or grew very slowly in hosts underfed on the special diet. The Flexner-Jobling rat carcinoma, on the other hand, was unaffected by the most rigorous and underfeeding on a mixed diet when this was begun after the tumor had been growing for a short period. Experiments to test the influence of underfeeding on recurrence of this tumor gave results that varied, but the findings strongly indicate that generalizations from work with transplanted tumors as regards the effects of diet on spontaneous growths are unwarranted.

By underfeeding on Sweet's food mice with spontaneous tumors, beginning some days prior to operation, it proved possible in most cases to delay for a relatively long period the development of recurrences and the growth of tumor bits (grafts) disseminated at the time of surgical interference. The treatment entailed great loss of weight. Tumor mice kept on ordinary diet previous to operation, but put thereafter on an abundant ration of Sweet's food, developed recurrences as early as the tumor mice on ordinary diet; whereas the growth of auto-implants was much delayed. These results seem attributable rather to a gradual malnutrition induced by the special food than to the circumstance that it lacked a growth principle. In none of the dieted mice was a definite cure obtained. Ordinarily a recurrence appeared and the grafts began to grow soon after the host, again on ordinary food, had regained weight. A few spontaneous tumors seem absolutely unaffected by the most rigorous dieting.

Rous thinks that it is conceivable that recurrences of certain human tumors and the development of metastases may be delayed or prevented for a period by methods somewhat similar to those employed against spontaneous mouse tumors in the present investigation. But generally speaking only the more malignant human tumors would require such palliative measures, and these are precisely the ones that would prove—if experience with mice is an index—least amenable to alterations in the nutrition of the host.

45. **Effects of Extirpation of Thymus in Rats.**—Lesions of the bones and teeth were observed by Pappenheimer in thymectomized rats, in controls of the same litters, in stock animals, and in a rat inoculated with bone-marrow from a thymectomized rat with lesions of the skeletal system. He sees no valid reason for attributing such lesions to the loss of thymic function. In some of the rats showing the disease, an unusual number of mitoses were found in the parathyroid glands, but no evidence of injury to these structures. Pappenheimer was unable to confirm the statements of Klose and Magnini as to the fatal effects of complete thymus extirpation in rats.

Lancet-Clinic, Cincinnati

October 17, CXII, No. 16, pp. 413-444

50 Two Hundred Nervous and Mental Cases; Alcohol as a Factor in Their Causation. R. Reed, Cincinnati.
51 Fascial Transplantation in Cure of Hernia. C. Hiller, Cincinnati.
52 Importance of Observation of Mouth and Teeth from Life Insurance Standpoint. G. V. I. Brown, Milwaukee, Wis.
53 Alcoholic Psychosis and Psychopathic Drinkers. T. A. Williams, Washington, D. C.
54 Use of Filters in Roentgen-Ray Treatment. C. Goosman, Cincinnati.
55 Thomsen's Disease—Myotonia Congenita. H. H. Hoppe, Cincinnati.

October 24, No. 17, pp. 445-470

56 Case of Epidemic Cerebrospinal Meningitis. P. H. Linthicum, Evansville, Ind.
57 Scopolamin Morphin in Labor. M. A. Tate, Cincinnati.
58 Public Health Administration. J. N. Hurty, Indianapolis.
59 Esophago-Bronchial Fistula. J. E. Pirrung, Cincinnati.
60 Clinically Malignant Nevi—Pathologically Non-Malignant. F. M. Coppock, Jr., Cincinnati.

Medical Record, New York

October 31, LXXXVI, No. 18, pp. 741-782

61 Treatment of Advanced Pulmonary Tuberculosis. S. A. Knopf, New York.
62 *Effects of Forty Years of Cholelithiasis. G. H. Hoxie, Kansas City, Mo.
63 *Suggestion Regarding Treatment of Fractures About Elbow Joint. W. E. Hartshorn, New Haven, Conn.
64 Vasomotor Disorders. W. H. Thomson, New York.
65 Subjective and Objective Symptoms (98) of Favorable and Unfavorable Reactions to Tuberculin. M. Solis-Cohen, Philadelphia.
66 Widening Pellagra Zone. G. G. Hunter and E. H. Williams, Los Angeles.
67 Treatment of Orbital Cellulitis. S. E. Pendexter, East Orange, N. J.

62. **Effects of Forty Years of Cholelithiasis.**—Hoxie presents a detailed post mortem report in a case in which the patient gave an authentic history of having suffered from gall-stones for over forty years. The anatomic diagnosis was as follows: Acute pancreatitis with necrosis, impacted gall-stone in common duct, local peritonitis in region of bile ducts and bladder, multiple gall-stones in bladder and in cystic and common ducts, yellow atrophy (?) of liver due to fatty degeneration, congestion of right kidney, fatty infiltration of the heart, partial thickening of pylorus, partial obstruction of ascending colon due to constricting band, acute dilatation of the stomach.

63. **Treatment of Fractures About Elbow Joint.**—After reducing the fracture and placing the forearm in the acutely flexed position Hartshorn applies the dressing as follows: 1. The placing of a gauze bandage extending from the wrist to the elbow permitting free movement at the elbow. 2. An adhesive strip is applied as suggested by Scudder, extending from wrist to arm. 3. Starting at the elbow the center of a strip of adhesive plaster 1½ cm. wide and of sufficient length to encircle the forearm and arm is placed posterior to the elbow and its ends brought forward to the anterior surface in the same manner as that employed in strapping the knee joint. A second strip if applied overlapping this one-half. This is followed by more strips of a similar nature, gradually ascending until the forearm and arm have been completely covered both anteriorly and posteriorly. Protected as they are by the gauze bandage previously applied, the adhesive does not at any point come in contact with the skin except at the hand and shoulder. 4. The application of a strip of adhesive plaster 5 cm. wide along the dorsum of the forearm and over the uninjured shoulder. This holds the hand firmly in position. 5. A similar strip of adhesive is then applied around the arm and chest just above the elbow.

The subsequent treatment of the fracture requires: Daily inspection for the first week. At the end of this time the adhesive plaster is removed and passive motion leading toward extention is applied. If acute flexion can be easily regained the dressing is reapplied, reducing the angle of flexion by substituting a muslin or gauze swathe for the plaster, allowing only the adhesive band to remain. This is permitted to stay in place for one week longer, when some form of an external angular splint is applied, which allows adjustment of the angle. After the second week massage and passive motion are employed each second day until both flexion and extension are approximately normal. Daily use of the extremity after the fourth week.

Michigan State Medical Society Journal, Grand Rapids

October, XIII, No. 10, pp. 573-634

68 Modern Practice of Medicine. G. L. Kiefer, Detroit.
69 Vital Statistics—White Slave of Sanitation. C. L. Wilbur, Albany.
70 State Medicine. W. H. Sawyer, Hillsdale.
71 Infant Feeding. R. B. Harkness, Houghton.
72 Local Anesthetics—Some Comparative Physiologic Reactions. O. E. Closson, Detroit.
73 Four Cases of Cholelithiasis and Pregnancy. R. A. Burke, Detroit.
74 Skin Grafting. M. D. Bird, Marinette, Wis.

Missouri State Medical Association Journal, St. Louis

October, XI, No. 4, pp. 157-206

75 *Use of Electrocardiograph in Study of Heart. G. C. Robinson, St. Louis.
76 *Cardiac Arhythmia. P. T. Bohan, Kansas City.
77 *Respiratory Disturbances in Heart Disease. Report of Case. G. H. Hoxie, Kansas City.
78 *Cancer of Cecum in Relation to Appendiceal Lesions. Report of Two Cases. P. Y. Tupper, St. Louis.
79 *Treatment of Migraine. G. Campbell, St. Louis.
80 Local Anesthesia in Major Surgery. W. A. Shelton, Kansas City.
81 State Medical Legislation from Viewpoint of Physician. W. S. Allee, Olean.
82 Retrobulbar Neuritis with Ethmoidal Involvement. Report of Case. W. F. Hardy, St. Louis.

75. **Use of Electrocardiograph.**—Curves from cases of complete heart-block, ventricular premature contractions or extra systoles and auricular fibrillation are shown by Robinson to demonstrate the importance of the conception of the heart-beat, that its normal mechanism is dependent on a proper coordination of two separately contracting portions of the heart, and that the electrocardiograph serves to demonstrate clearly any derangement of this coordination that may occur.

76. **Cardiac Arhythmia.**—Bohan has used strophanthin in eighteen cases of fibrillation with excellent results in all, except one patient who had fever. When the pulse is rapid 1/100 of a grain of strophanthin intravenously will usually reduce the rate one-third within one hour. One such dose every four to seven days is usually sufficient. In some patients it has to be repeated every day or two. The action of strophanthin is the same as digitalis. It is easily administered, practically painless and in over 300 injections that Bohan has given there have been no bad results.

77. **Respiration in Heart Disease.**—Hoxie states there are several factors in the production of irregular respiration in cardiac cases. They are, first, the mechanic insufficiency of the lungs because of the damming back of the blood in the lungs and of the lowered blood-pressure; and second, the oxygen lack at the medulla. Added to these factors is the acidosis due to insufficient combustion in the tissues. It follows, therefore, that in the dyspnea of cardiac patients the inhalation of oxygen may be of great benefit. By increasing the oxygen tension of partial pressure more oxygen will be taken up by the blood, more passed to the tissues and to the respiratory center, and the chemical cause of the dyspnea removed.

Inasmuch as there are several factors at work in the production of periodic respiration, the early recognition of the type of respiration will enable the clinician to prolong life by taking measures to remove the factors at fault, namely, stimulate the heart action with digitalis or increase the blood-pressure with pituitrin, or lower it with the nitrites,

or reduce the acidity by administering alkalies, or attack the oxygen lack directly by administering oxygen itself, as the circumstances may permit.

78. **Cancer of Cecum.**—According to Tupper malignant disease of the appendix is not uncommon. The new growth cannot be clearly differentiated from carcinoma microscopically, but clinically its deportment is definitely that of the endotheliomata elsewhere in the body. The malignant process is probably grafted on the appendix that has, as the result of inflammatory action, undergone cicatrization and partial or complete obliteration of its lumen. The removal of the involved appendix generally compasses the trouble, as secondary glandular involvement and metastases are rare. In rare instances the cecem seems to have been involved secondarily to and as the result of the cancer of the appendix, but definite proof of this is wanting.

79. **Treatment of Migraine.**—In all cases of migraine, Campbell says, treatment should consist of first a sufficiency of outdoor recreative exercise, first strengthening the muscles, if required, and stimulating the patient's interest and pride in physical accomplishments; second, a diet abundantly rich in cellulose with agar-agar added if necessary, and from which sugar is eliminated, protein given very sparingly and starch in moderation only; third, when the above diet and abundant diluents fail to keep the bowels free, the rectum should be attended to, or, this failing of effect, a saline as above advised should be regularly employed, and finally the patients should receive three times daily, after meals, a dose of spirits of glonoin sufficient for him to feel the physiologic effect in slight headache or throbbing of head or flushing of face shortly after taking each dose, and the dose should be maintained at or slightly beneath this. Remember that to maintain this effect, the dose has often to be greatly increased, sometimes to 30 drops or more three times a day. Such a regimen has, in Campbell's hands, brought much relief to patients with a condition in which the suffering headache, severe though it often be, is of minor importance compared to the effect on the cardiovascular system and life expectancy itself.

New York Medical Journal

October 31, C, No. 18, pp. 849-900

83 Nerve Block, Public Health and Tuberculosis. J. Grant, Ottawa, Canada.
84 Diseased Conditions of Cecum. G. R. Satterlee, New York.
85 *Features of Pneumococcus Meningitis. A. Gordon, Philadelphia.
86 An Improved Ether Inhaler. A. E. Gallant, New York.
87 Implantation of Generative Glands and Its Therapeutic Possibilities. (To be continued.) G. F. Lydston, Chicago.
88 Intranasal Operation in Tumor of Hypophysis. T. H. Halsted, Syracuse.
89 Blackwater Fever. W. H. Deaderick, Hot Springs, Ark.
90 *Normal Horse Serum in Hemorrhage from Nose and Throat Operations. C. F. Theisen and N. K. Fromm, Albany.
91 *An Effective Method to Prevent Postoperative Nasal Hemorrhages. A. I. Schwartz, New York.
92 Treatment of Ringworm of Scalp. P. E. Bechet, New York.

85. **Features of Pneumococcus Meningitis.**—The difficulty of making a diagnosis in some of these cases is commented on by Gordon. In a case recently observed by him, there were no special nervous manifestations, except during the last few hours when the patient had convulsions and a right hemiplegia. Rigidity of the neck, Kernig's sign, opisthotonos, tenderness of the spine, cutaneous hypesthesia, headache, mental phenomena, changes of reflexes were all absent throughout the disease. Two weeks before death the patient manifested a slight sore throat, anorexia, and constipation. The throat condition rapidly disappeared. A tooth abscess then formed which gave him considerable pain. While the patient was recovering from the abscess, he began to suffer from pain in the left shoulder. The latter continued up to four days before he expired. The temperature was 102 F., a murmur was heard at the mitral valve. No special nervous manifestations were in evidence. Uranalysis showed traces of albumin; otherwise the urine was normal. On spinal puncture, the cerebrospinal fluid showed slight turbidity with flocculent substance; albumin ++++; Noguchi globulin test ++++; polynucleosis; pneumococci. The patient's condition remained unaltered, except for the temperature which went up to 103.2 F. The condition of the pulse was significant. Most of the time it did not run parallel with the temperature. On the fourth day the patient had convulsions and a spasticity on the right side. Three hours later he expired.

Autopsy showed stenosis of the mitral valve, chronic nodular fibrosis with some calcareous infiltration in the valve; the chorda tendinae were also much thickened; the thickened pericardium contained 60 to 65 c.c. of clear limpid fluid; the pleura on the right was thickened and adherent to the diaphragm. The brain was found bathed in thin pus at the base and especially at the convexity, more on the left than on the right side; blood-vessels were congested along the Rolandic fissure on the left side. The spinal cord was congested. Section of the brain and cord revealed nothing that deserved special mention. The pus from the cranial cavity gave pure cultures of pneumococcus.

90. Abstracted in THE JOURNAL, July 18, p. 271.

91. **Nasal Hemorrhages.**—Schwartz dips a pledget of absorbent cotton on a nasal applicator in a 100 per cent. solution of silver nitrate and carefully passes it over the cut surface only. By this method he has made his nose operations almost always bloodless.

Vermont Medical Monthly, Burlington

October, XX, No. 10, pp. 243-256

93 Malignant Disease. A. L. Miner, Bellows Falls.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

May, XXXVI, No. 3 and 4, pp. 271-552

1 *Lymphogenous Infection of Central Nervous System. D. Orr and R. G. Rows.
2 *Unusual Type of Hereditary Disease of Nervous System. Congenital, Extracortical, Axial Aplasia. F. E. Batten and D. Wilkinson.
3 *Anatomicophysiologic Study of Posterior Longitudinal Bundle in Its Relation to Forced Movements. L. J. J. Muskens.
4 Experimental Research into Anatomy and Physiology of Corpus Striatum. S. A. K. Wilson.
5 *Aphasia Due to Atrophy of Cerebral Convolutions. Report of Case. G. Mingazzini.
6 *Study of Satellite in Fifty Selected Cases of Mental Disease. S. T. Orton.

1. **Lymphogenous Infection of Central Nervous System.**—The results of the authors' experiments support the view that the character of the cellular reaction found in the nerves and in the spinal cord when the disease-producing agent approaches by the lymph-stream depends entirely on the potency of the irritant, and further, that many of the so-called varieties of cells have one and the same origin. When the capsule had not burst and the tissues were attacked by the toxin only, they found that the reaction produced was of the plasma-cell type, including under that term the numerous intermediate forms which have been described earlier in this paper. But in the other series in which the capsule had burst and the organisms had grown among the tissues, there was an altogether different picture. All the cells of the connective tissues and of the walls of the vessels exhibited an intense proliferation, with the production of another predominating type of cell, the polyblast; there were also collections of Körnchenzellen showing various stages of development. In the subacute series there were some polyblasts in the reaction outside the dura mater, namely, quite close to the capsule. It was at this point that the results of the two series of experiments might be said to have met.

In these two series of experiments a culture of the same organism was employed, and the experiments were performed on members of the same species of animals, living under identical conditions, and the animals lived about the same length of time after the operation; therefore, the authors consider that the difference in the reaction in the two series must be attributed to the difference in the intensity and quantity of the irritant. The reactions were produced

in both instances by infected lymph, which spread by the same path and therefore attacked the same cells. There is no doubt in their minds that if the capsules in the second series of experiments had not burst the reaction would have been of the plasma-cell type, namely, the type of cells characteristic of the subacute inflammations; but as the capsules had burst and the organisms had grown among the tissues, the reaction was of the polyblast type, namely, the type of the acute inflammations. These cells were the direct product of the action of the disease-producing agent and therefore the conditions corresponded to the primary inflammations of Schmaus. But there were small collections of Körnchenzellen, and the authors are convinced that if the animals had lived a little longer and the nerve elements had broken down under the influence of the more prolonged action of the irritant, the tissues would have been infiltrated by these cells and the conditions would have corresponded to the secondary inflammations of Schmaus.

2. **Hereditary Disease of Nervous System.**—The disease described by Batten and Wilkinson is a familial and hereditary one, having its onset in the first three months of life, even if it is not actually congenital. It presents symptoms which in many respects are similar to those seen in cases of disseminated sclerosis, cerebellar disease, and in its later stages, to Friedrich's disease. It is very slowly, if at all progressive, affects chiefly males, and is transmitted by healthy females. In the family described by them males only are affected. It corresponds to none of the commonly recognized types of familial affection, but the symptomatology so closely resembles that presented by the family recorded by Pelizaeus and Merzbacher that Batten and Wilkinson believe the disease to be of the same nature, although no pathologic examination has been made in any member of the family here described.

When the children were first seen Batten and Wilkinson were inclined to associate the condition with some congenital defect in the development of the cerebellum such as occurs in litters of cats and puppies, and have been recorded by Herringham, Andrewes, Risien, Russell and others, but after studying the pathologic anatomy as put forward in Merzbacher's paper, they have come to the conclusion that their cases probably belong to that group. Six males at least were affected in two generations. Those affected were either congenitally diseased or exhibited symptoms in the first months of life, the progress of the disease being very slow. They were mentally defective and ataxic, showed nystagmus, speech defect, and defective development, with weakness and spasticity of the lower limbs.

3. **Study of Posterior Longitudinal Bundle.**—The study by Muskens of the physiologic phenomena observed after lesions of different parts of the vestibulary system demonstrates that there is a far-reaching differentiation of function in the primary end-stations of the vestibulary nerve. Further, it also shows that the different strands of fibers which connect the vestibular nuclei with the various nuclei in the midbrain and with the region of the posterior commissure in a cerebropetal direction may be more accurately analyzed. The starting point of this analysis is the fact that an ascending degeneration of the crossed vestibulomesencephalic bundle, which forms the bulk of the mesial part of the posterior longitudinal bundle till near the nucleus of the posterior commissure, is always found associated with circus movements to the side of the intact posterior longitudinal bundle. The degeneration of an ascending tract lying immediately lateral to the crossed vestibulomesencephalic tract in the posterior longitudinal bundle formation appears to be equally associated with a circus movement (or rather conjugate deviation) to the side of the normal posterior longitudinal bundle. This tract is further shown to be a homolateral tract originating exclusively in the nucleus of Bechterew, at least in the oral parts of the vestibular region, and terminating in the region of the posterior commissural nucleus. This bundle is styled the homolateral vestibulomesencephalic fasciculus. Both the circus movements observed after lesion of the homolateral or crossed vestibulomesencephalic tracts are associated with conjugate deviation of the head and eyes to the side of the movement, or with loss of lateral deviation of the eyeballs to the opposite side.

From experimental data furnished by Muskens' investigation, it is seen that after a direct lesion in the region of the posterior commissure of the cat on one side, in which the resulting circus movements were directed to the side of the lesion, a descending tract degenerates which lies at the innermost part of the posterior longitudinal bundle of the same side. This tract probably originates in the posterior commissural nucleus. As it stops short in the medulla it is suggested that it may be termed the fasciculus commissuromedullaris. Like the circus movements the rolling movements may serve as a guide in working out the anatomophysiologic analysis of the vestibular complex and the posterior longitudinal bundle formation. After a direct lesion of the complicated nerve fibers, which help to form the vestibular root, a rolling movement toward the injured side is constantly observed, mostly associated with a skew deviation and conjugate rotation of the eyeballs around their anteroposterior axis.

In three cases of lesion of the descending branch of the nucleus vestibularis rolling movements toward the normal side were seen lasting over several days. Lesion of Deiters' nucleus proper was found in two cases associated with rolling movements, moderate in character, toward the side of the lesion. From this nucleus the degeneration spread upward along a tract which lies in the outermost part of the lateral horn of the posterior longitudinal bundle. A direct lesion of this ascending tract or connection is also associated with a tendency to roll toward the side of the lesion. This was demonstrated in five cases. The fibers of this tract appear to end mostly in the tegmentum, although some may be traced to the caudal part of the posterior commissure, in which the fibers appear to lose their medullary sheath; it is therefore suggested that it should be styled the tractus vestibulotegmentalis lateralis. Its origin is apparently in the medium-sized cells of Deiters' nucleus proper, its termination probably in the interstitial nucleus. A comparison of the cases in which the lesion is situated in the region of the posterior commissure leads Muskens to postulate in that region a center, probably the nucleus interstitialis, injury of which (or of its afferent tracts from other parts) in the cat is constantly followed by rolling movements to the normal side. If the descending connections of the vestibular structures which control the circus and rolling movements and those of the superimposed mesencephalic structures be compared, the conclusion seems warranted that the descending connections are far more important in the case of the rolling movements. Relatively few descending fibers which originate in the structures associated with circus movements pass beyond the sixth nucleus.

5. **Aphasia Due to Atrophy of Cerebral Convolutions.**—In the period between 1907 and 1909, Mingazzini's patient showed disturbances in his speech, which gradually increased and consisted in the use of unusual words in ordinary conversation (paraphasia and echolalia). He also experienced difficulty in understanding many questions. After two years (March, 1907, to August, 1909), the examination of the patient revealed true partial sensory aphasia (with automatic echolalia and perseveration), associated with paralexia and almost complete agraphia. In February, 1910, the sensory aphasia had become almost complete and some dysarthria was noticed in his repetition of words. The understanding of words was extremely limited; further, a condition of advanced dementia showed itself, accompanied by symptoms of agnosia. In October, 1910, the speech disturbances had become still more serious; the word deafness, the alexia and the agraphia were complete, while voluntary speech was almost entirely absent. Parallel with these progressive disturbances of speech a condition of mental weakness gradually developed, which at last became a true dementia and was attended with symptoms of agnostic apraxia, and psychial blindness. Two months later (four years after the beginning of the disease) the patient died. The post mortem revealed

severe atrophy of the prefrontal and temporal convolutions, the left side being the most affected, while the histologic examination showed severe alterations in the nerve-cells and medullary fibers of the convolutions belonging to the Broca region (*in sensu lato*) and to T, these changes being greatest on the left side.

6. **Satellite Cells in Mental Disease.**—The analysis by Orton of the relative numerical occurrence of satellite cells in ten cases, each of five psychoses, seems to him to warrant the conclusion that satellitosis cannot be considered in any sense indicative of the type of psychosis, although it has in this series appeared with more consistent intensity in the maniacal depressive cases and has been of very much less prominence in dementia praecox. The reaction elects the deeper cell layers both in regard to frequence of occurrence and degree of reaction. The cortices of the dome, precentral, postcentral and frontal, seems to show the reaction with greater intensity than do the temporal and occipital regions. Age at the time of death seems to play some part in the occurrence of severe reactions, but cannot be considered the only factor. The duration of the psychosis bears no demonstrable relation to satellitosis.

British Medical Journal, London

October 17, II, No. 2807, pp. 653-696

7 Cancer of Duodenum and Small Intestine. J. Bland-Sutton.
8 Present-Day Lessons from Life Work of Mitchell Banks. V. Horsley.
9 *Pinewood Sawdust as Surgical Dressing. C. W. Cathcart.
10 Insects and War: Flies. (1) House-Fly. A. E. Shipley.
11 Outlook in Epilepsy. W. A. Turner.
12 Rheumatoid Arthritis. D. D. Brown.
13 Treatment of Torticolitis. P. B. Roth.

9. **Pinewood Sawdust as Surgical Dressing.**—Sawdust is used by Cathcart as a surgical dressing not only for operation wounds but also for septic cases of all sorts. It has also been much appreciated as a dressing for the shell wounds of the wounded German sailors in Edinburgh Castle, and it is valuable for cases of incontinence of urine. As to the wood, the sawdust from various kinds of pinewood has given good results. The softer kinds are the best, being more absorbent, while the harder kinds although less absorbent, have the advantage of containing more resinous material. Commercial hard woods like mahogany or oak should be excluded if pinewood can be obtained. A simple method of testing the absorbant property of a sample piece of planed wood is to draw a stroke across it with a pen full of ink. If the ink spreads laterally, and dries in quickly as it would on blotting paper, the fiber of the wood is good for surgical purposes. If the ink remains on the surface, as on writing paper, the absorbent power is deficient. Apart from the wood itself, however, a good deal of absorption will take place between the individual particles of the wood.

The method of preparation Cathcart has found useful is the following: Two large standard wire sieves are required —No. 8, that is, eight threads per inch, and No. 40, that is, forty threads per inch. In order to reject the coarse fragments the sawdust as obtained from the sawmill, is passed through No. 8, sieve and allowed to fall on to No. 40. It is then well shaken and rubbed on No. 40, and the very fine particles which pass through are discarded, because they would escape too readily from the prepared pads and cause an inconvenient dust. The sawdust which remains on No. 40 sieve is put into a box or sack and sent to the surgical nurse. The bags are made of butter muslin, and the sizes may be regulated according to requirement. The nurse fills the bag about two-thirds full with the sifted sawdust, and then closes it with colored thread. The filled bags or pads are sterilized by steam in the same manner as other dressings. After use the colored thread is withdrawn, the sawdust thrown away and the bag washed, boiled and dried for future use.

Dublin Journal of Medical Science

October, III, No. 514, pp. 241-319

14 Myasthenia Gravis. Report of Three Cases. R. O. Smyth.
15 Four Cases of Pancreatic Disease. E. J. Malherbe.
16 Pathologic Report of Rotunda Hospital from November, 1912, to October, 1913. R. J. Rowlette.

Journal of State Medicine, London

October, XXII, No. 10, pp. 577-640

17 Medical Inspection in Relation to Special Schools. E. T. Roberts.
18 Medical Treatment of School Children in Rural Districts. A. E. Williams.
19 Training of Teachers in Hygiene. C. C. Douglas.
20 Occurrence of Amebiasis in Malta. P. P. Debono.
21 Toxicity of Extracts of Organs. H. Dold.

Journal of Tropical Medicine and Hygiene, London

October 1, XVII, No. 19, pp. 289-304

22 Systemic Position of Genus Tricophyton Malmsten, 1845. A. J. Chalmers and A. Marshall.
23 Molluscum Fibrosum, Pendulatum atque Elephantiacum. F. S. Harper.

Lancet, London

October 17, II, No. 4755, pp. 931-978

24 *Cancer of Duodenum and Small Intestines. J. Bland-Sutton.
25 Position of Psychiatry and Rôle of General Hospitals in Its Improvement. C. H. Bond.
26 *Incontinence of Urine in Women. D. Newman.
27 Multiple Round-Celled Sarcoma Originating in Nares. C. N. Slaney.
28 Case of Mediastinal Pleural Effusion. A. Rose.
29 Four Cases of Splenectomy following Rupture. R. Cox.
30 Bee-Stings and Anaphylaxis. A. T. Waterhouse.

24. Also published in the *British Medical Journal*, Oct. 17, 1914.

26. **Incontinence of Urine in Women.**—The operation Newman has performed successfully in a considerable number of cases during the last fifteen years is described as follows: The patient may be placed either in the lithotomy or in the elbow-knee position. The posterior wall of the vagina is fully depressed, so as to expose the anterior wall fully in view. The bladder is distended with 12 ounces of boric solution. A straight steel bougie No. 14, with a knob of the size and shape of a horse-bean half an inch from its point, is introduced into the bladder, at first fully and then partly withdrawn, so that the knob comes down to and locates the neck, and by elevating the handle of the bougie the knob is made to throw out the posterior wall of the bladder immediately above the sphincter, and so project it backward and downward. Three sutures, one anterior and two lateral, are now passed through the lips of the os, and the uterus is dragged downward so as to give a clear view of the anterior wall of the vagina.

A median vertical incision is now made from the uppermost point of the knob of the bougie downward over the knob and along the middle of the stem for a distance of 1½ to 2 inches. With blunt pointed scissors cutting on the flat the mucous membrane and muscular coat of the vagina are carefully separated on both sides of the median incision. Down to the submucous tissue of the bladder and urethra, without exposing the vesical mucous membrane itself. The vaginal mucous membrane is removed over a lozenge-shaped area, the center of which corresponds with the position of the most prominent part of the knob of the bougie; the upper angle is just over the point of the instrument. The lower angle corresponds with the stem, while the two other angles point outward one on either side. Incisions are now made to join the apices, and a lozenge-shaped portion of vaginal mucous membrane is removed, exposing a corresponding area of raw surface, the floor of which covers the neck of the bladder and the first half inch of the urethra. The next step of the operation consists in building up a dam to prevent the too easy escape of urine. The successful construction of this mechanical obstruction depends on heaping up a bank of mucous membrane on the vesical side of the septum and supporting it by tightening the structures behind—those on the vaginal side.

The sutures are chromic catgut and are introduced as follows: On the left lip of the wound the needle is passed from left to right; it enters immediately under the vaginal mucous membrane to come out one-eighth of an inch to the left side of the center line of the bougie; it is then carried over the rawed surface to one-eighth of an inch beyond the right side of the bougie, in which it penetrates the tissue, to be brought out on the right lip of the wound. Six sutures are passed in this way. The bougie is now withdrawn, and the sutures are tied, cut and buried. A second row of fine gut sutures is applied to unite the margins of the wound in

the vaginal mucous membrane, and the operation is completed. No special after treatment is required, except that it is well to retain a small sized rubber catheter for the first six to eight days, and to cleanse gently the parts twice daily.

Bulletin de l'Académie de Médecine, Paris

October 6, LXXII, No. 30, pp. 103-145. Last indexed August 29, p. 810

31 *Tetanus among the Wounded. C. Walther.
32 *Nature and Prevention of Accidents during Treatment of Obesity with Heart Disease. (Les inconvénients des cures d'amaigrissement chez certains cardiopathes.) C. Fiessinger.
33 Wounds Vary in Severity as Bullet is Fast or Slow. Capitan.
34 Rose-Pickers' Dermatitis. (Les affections des mains chez les cueilleurs de roses de la Riviera.) L. Revillet.

31. **Tetanus.**—Walther states that twenty cases of tetanus he has encountered among the wounded in his charge all came from a certain district along the Marne where tetanus has long been known to be frequent. It developed only among men wounded by shrapnel, and he thinks only when the exploding pieces hit the ground first or the explosion drove dirt from the ground into the wound. None of the bullet wounds was followed by tetanus. Hence he urges the necessity for prophylactic injection of antitetanus serum as a routine measure after a shrapnel injury. The Académie passed a resolution appealing to the authorities to have an ample supply of the serum on the firing line.

32. **Disturbances Liable to Follow Reduction of Obesity.**—Fiessinger thinks that there is much to sustain the assumption that the fat serves as a kind of filter to hold back certain toxic substances. When the fat is thrown off, these toxic substances make their presence felt, and the patient may develop rheumatism, sciatica, eczema, gout, interstitial nephritis, or neurasthenia. "The connection between the loss of fat and the development of these troubles is conclusively shown by their subsidence as the patient puts on a few pounds more of fat." His treatment of obesity is mainly dietetic, having the patient eat lightly seven times a day, so he never gets very hungry. He has had some disturbance like the above in fifteen of his 145 patients with obesity and heart disease, and in three the disturbance took the form of neurasthenia. In all the disturbances ceased as soon as the patients had gained 10 or 12 pounds again after they had previously thrown off from 22 to 45 pounds in a few months. As the fat recedes it seems to leave exposed the morbid taint which then exerts its injurious influence. The amount of reduction permitted should be carefully individualized and not be calculated for the height. See also Paris Letter, p. 1684.

Berliner klinische Wochenschrift

October 5, LI, No. 40, pp. 1677-1696

35 Displacement of Internal Organs with Kyphosis; Seven Photographs of Mounted Torso. (Situs der Thoraxeingeweide bei spitzwinkliger Kyphose.) H. Virchow.
36 *Partial Interruption of the Operation of the Mind and Periodical Insanity. (Schizothymie und Zyklothymie.) O. Kohnstamm.
37 Roentgen Examination of Stenosis of the Small Intestine. (Dünndarmstenosen.) E. Marcuse.
38 Carbon-Dioxid Snow for Correction of Small-Pox Pitting. (Neue Erfahrungen über Pockennarbenbehandlung.) P. Unna, Jr.

October 12, No. 41, pp. 1697-1716

39 *Dysentery. (Zur Behandlung der Ruhr.) F. Göppert.
40 Wounded Prisoners in Berlin. (Kriegsgefangenenlazarett Alexandrinenstrasse.) Brettner. (Die ersten Wochen kriegschirurgischer Tätigkeit.) W. Levy. (Schussverletzungen von Gehirnnerven.) E. Froehlich.

36. **Schizothymia.**—Kohnstamm's "schyzothymia" is best defined by an example of it. He cites, for instance, the paralysis suggested during hypnosis and persisting afterward. It is an interruption in the psychic continuity, and search for and removal of the cause in such a condition may realize a cure when otherwise the trouble would seem to be incurable cyclic insanity or the like. He compares it to a sand bank in a level desert of sand, and discusses it from various points of view.

39. **Dysentery.**—Göppert has had extensive experience with dysentery in children in the last few years and thinks that the lessons learned with them can apply also to adults, especially the necessity for feeding with mineral elements which have been lost in such amounts, also albumin in the most easily assimilated form and carbohydrates, but not too exclusively the latter. Whey and buttermilk supply the needed minerals for infants, and with this can be combined meat juice or soup. At first the fasting must be complete, but later hunger is liable to aggravate the course of the disease, but the digestive organs are left very sensitive so that motor insufficiency of the stomach is frequent. Fruit juices are also useful in the later course. The tenesmus and diarrhea are sometimes benefited by rectal injection of bolus alba, a handful to a liter of water, with a teaspoonful of salt. Its use internally is lauded by some, but Göppert thinks that the mild cases will get well without it and in the severest cases he says that it is impossible to influence with it the number of bowel movements or the general condition. Castor oil at first is the main reliance, and combination with opium may render good service. Biermer's mixture of krameria, cinnamon and logwood hastens the subsidence of the disease already on the wane, and he advocates it as a valuable aid even with this restriction.

The formula is

		c.c.		
℞	Decoeti Ratanhiae (50)	450		ʒ xv
	Extr. Campechiani	5 to 8	or dr. i to ii	
	Sir. Cinnamoni	qs. ad 500		ʒ xvi

Dose 20 or 30 c.c. five or six times a day.

Deutsche medizinische Wochenschrift, Berlin

October 1, XL, No. 40, pp. 1801-1824

41 *The Food of the Populace during the War. (Die Volksernährung im Kriege.) M. Rubner.
42 Care of the Wounded in the Field. (Einleitung in die Kriegschirurgie.) V. Czerny. (Grundlagen der heutigen Kriegschirurgie.) E. Lexer.
43 *Dysentery. (Zur Klinik der Bazillen-Ruhr.) J. A. Grober.
44 *Venereal Disease in the Army. (Bekämpfung der Geschlechtskrankheiten im Kriege.) A. Blaschko.
45 The Medical Service in the Navy. (Kurzer Ueberblick über das Marine-Sanitätswesen.) H. F. W. Hoffmann.

41. **Supply of Food in Germany.**—Rubner says that Germany now leads all other European nations in the amount of meat consumed per capita, namely, 52.3 kilograms per year (1912). The figure for England was 47.6; for France, 33.6; for Austria, 29; Russia, 21.8, and Italy, 10.4. He states that Germany does not import meat and hence the supply will not be cut off by the war. "The only loss will be the eggs and poultry from Russia and sea fish, but these can probably be obtained from neutral countries in sufficient amounts." Only about three-fourths of the wheat used in Germany is raised there, but there is an overabundance of rye, and this will more than compensate the loss of wheat and of rice. Only 28 per cent. of the potato crop has been used for the table; the distillers took 4.6 per cent., the starch factories nearly as much, and nearly 50 per cent. was used for fodder. A large proportion of the potatoes usually rot before spring, and here a change must be made to prevent this waste. Desiccated potatoes can be used to advantage in soups, purées, etc.

Germany has been in the habit of exporting its rye and importing cheaper fodder from Russia. The loss of this 3,500,000 tons of cheap fodder can be made up from the surplus of other grains. Parliament has regulated the matter so there can be no wholesale slaughtering of cattle for pecuniary reasons. He reiterates that the stock of cows must be maintained at all hazards, and that the supply of milk can be rendered more plentiful by a little more economy in consumption of butter. He figures that if each person would stint himself just a little (1 gm.) butter each day this would be equivalent to releasing the milk of 300,000 cows for other purposes. He continues, "When the man of the house is away, the family table is usually much simpler. It is of the greatest importance that the army is now living in and off the enemy's country and that many accumulated stores of provisions have fallen into our hands."

43. **Dysentery.**—Grober states: "In the present epidemic there have been 19 deaths in 400 cases, and there were 23 house infections. The bacilli alone do not cause dysentery; there are probably many healthy carriers by this time. Some

error in diet throws down the barriers by inducing irritation in the bowel. The first symptoms generally appear about three or four hours after ingesting too young beer, soggy bread or unripe fruit or drinking much contaminated water. They range from slight discomfort to the severest toxemic conditions in a few hours but intense tenesmus and blood in the stools are the rule. The pains are sometimes ascribed to the stomach; the transverse colon is probably responsible for this." He has one patient who for six weeks has had fifteen or twenty thin, bloody stools daily, but as long as the heart keeps strong, hope should not be given up. Convalescence is very slow and for weeks the patients seem apathetic and dull. Even in the mildest cases, recovery takes about two weeks, and relapses are not uncommon. In treatment, serotherapy is the main reliance. A dose of castor oil is given next, but he never saw much benefit from tannin preparations. Light red wine, boiled and with cinnamon, seemed to give great subjective relief. Tincture of opium is reliable but such large doses are necessary that the effect on the heart may be detrimental. In many severe cases the distress was so extreme that morphin had to be given. Singultus was hard to control; sometimes it yielded to a narcotic after scraps of ice with a few drops of some fruit juice had been dissolved in the mouth. Opium suppositories occasionally, but not always, relieved the tenesmus; bolus alba did not seem to display any efficacy in the severer cases in which alone it was used. His experience confirms the necessity for heart stimulants if the circulation weakens. He did not try ipecac. Moist heat to the abdomen gave great relief as a rule. The patients were kept on gruel, tea, cocoa and light red wine as long as the stools contained blood and mucus, but henceforth he is going to try a little more nourishing food. (The *Berlin. klin. Wchnschr.* of October 12, reports 924 cases of dysentery at over forty scattered points in Germany, including Cologne, Breslau, Kattowitz and Kreuzburg, mostly among the prisoners.)

Prophylactic measures are simple, refraining from touching the face with the hands (smoking) and cleanliness in eating, but above all refraining from errors in diet. "Medical men in the tropics have found it an aid in prevention to take five drops of dilute hydrochloric acid in some beverage at each of the principal meals. The dysentery bacillus is extremely susceptible to hydrochloric acid." "Transmission of the disease by flies has been abundantly demonstrated anew in the present epidemic, and it is impossible to overestimate this danger."

44. **Venereal Disease in Wartime.**—Blaschko remarks that down into the eighteenth century an army of prostitutes regularly accompanied every army in active service, sometimes outnumbering the troops. "But this army of female camp-followers," he continues, "did not become a hygienic danger until at the end of the sixteenth century syphilis swooped down on the troops and has been at home throughout Europe ever since. The introduction of the system of compulsory military service altered all this, but even Napoleon was unable to prevent hordes of female camp-followers from accompanying his army in the campaign into Russia, and in the recent Russo-Japanese War the Russians, especially the officers, were accompanied by some."

"Although the present war is far graver than any of the wars in previous centuries, yet we must accept the possibility of a great increase in venereal diseases. The men left in charge of a conquered city are particularly exposed to this danger. In some the brothels have been closed, but in other cities, where people still believe in the hygienic efficacy of these institutions, they are flourishing more than ever. But conditions are not much safer even where there are no brothels. I have seen here in Berlin a number of cases of recently acquired gonorrhea and syphilis among the troops and the number of reservists who were found healthy on joining the colors and who already have been sent back from the front for treatment of gonorrhea acquired since is larger than is generally supposed."

"During the last half of the Franco-Prussian War, venereal diseases formed 9 per cent. of all the morbidity. It is self-evident that men with fresh gonorrhea are unable to go on marching or fighting."

"In peace, regulation of prostitution does not accomplish much, but the strict measures that can be enforced under exceptional conditions, as during a campaign, may be of the greatest utility. Absolute prohibition of public dances, and the early or total closing of saloons will help, and extreme care must be taken to weed out any loose women that may attach themselves to the army in the guise of nurses, etc. This sifting out must be done chiefly in the base stations. The hygienist accompanying the corps must have previously informed himself as to the conditions regarding prostitution in each district the corps enters."

"Many physicians regard it as impossible to prohibit entirely to the troops all intercourse with prostitutes. But this is absolutely false, according to my opinion" . . . "Keeping secret a beginning venereal disease justifies punishment." Blaschko remarks in conclusion that the many women deprived of their livelihood now by the shutting down of factories, etc., present a particularly serious danger, and it behooves the authorities to provide employment for them in some way or at least food and shelter. Well-to-do women who serve gratuitously from patriotic motives in preparing articles to be sent to the soldiers, etc., had better ponder whether it would not be better to set some of the unemployed at the task and pay them for it. He protests against the exclusion of cases of venereal disease from the hospitals, to make room for wounded soldiers as has been done in some quarters, calling it a very short-sighted policy which will bring retribution later.

Medizinische Klinik, Berlin

October 4, X, No. 40, pp. 1527-1554

46 Internal Diseases in the Army. (Ueber einige während des Feldzugs vielleicht wichtige innere Krankheiten.) M. Matthes.
47 Indirect Injury of the Ear from Explosives. (Indirekte Schädigung des Gehörorgans durch Schusswirkung.) Haenlein.
48 Vaccination against Typhoid. (Schutzimpfung gegen Typhus.) H. Sachs.
49 Splenectomy for Pernicious Anemia. (Die Milzexstirpation bei perniziöser Anämie.) W. Hansing.
50 Systematic Therapeutic Inhalations. (Fortschritte der Inhalationstherapie.) A. Haupt.
51 Treatment of Subcutaneous Hematoma. O. Nordmann.

October 11, No. 41, pp. 1555-1580

52 *Skin Diseases among the Troops. ((Bedeutung der Hautkrankheiten für den Krieg.) F. Pinkus.
53 *The Infectious Diseases to Be Reckoned with during a Campaign. (Mit welchen Infektionskrankheiten haben wir während des Feldzugs zu rechnen?) H. Eichhorst.
54 *Soldiers' Foot Tumors. (Die Fussgeschwulst der Soldaten.) G. Müller.
55 Orthopedic Surgery in Wartime. A. Bum.
56 Chronic Nephritis. (Klinische Erfahrungen und Anschauungen über die Brightsche Nierenkrankheit.) F. Volhard. Commenced in No. 40.
57 Ankylosis of the Spine. G. Arnheim.
58 The Metabolic Processes during Thyroid Treatment. (Stoffwechselvorgänge bei Schilddrüsenbehandlung.) L. Hirschstein.

52. **Care of the Feet.**—This is only one of the points touched on in Pinkus' article on the importance of skin lesions and disease among the troops. He says "Every soldier is trained in the care of his feet, from the very beginning of his military service. The troops are trained to stand the longest marches by combating sweating of the feet, by the use of suitable shoes and inner covering for the feet, and by systematic exercise of the muscles during the exacting drill. The foot-cloths used instead of stockings are of great service in protecting the feet against getting sore. They are easily changed, easily cleansed, as they dry rapidly after washing, and if they shrink during washing this does no harm. Washing and drying are much harder with woolen socks, and they are liable to shrink and squeeze the toes, while the spots worn thin or in holes come always at the same points on the foot, and where there is greatest danger of abrasion. With the foot-cloth, on the other hand, fresh parts each time can be drawn over the heel, etc., thus protecting them against injury. Those unaccustomed to these foot-cloths may not like them, and for such the next best is to draw on a second sock over the first, both amply large. The woolen double sock forms an extraordinarily elastic foundation for the foot, keeps it

warm, and protects it against wet and against pressure from the stiff and shrinking leather when it gets wet. The double socks also absorb perspiration well and enable the socks to be changed about, putting on first one and then the other." He warns that sweat and dirt invite eczema in folds in the skin, and also annoying and tenacious mycosis, especially around the anus and genitals—all of which can be warded off by systematic cleanliness, especially sponging off with alcohol.

53. **Infectious Diseases Liable to be Encountered During the War.**—Eichhorst says that no means of protection against exanthematous typhus, "war typhus," like vaccination against small-pox, is known, and it is liable to be brought into Germany by Russian prisoners of war. Bacteriologic differentiation of it is not on a sure footing as yet. "With salvarsan we can cope with relapsing fever; plague is not near enough to cause alarm, and cholera can be kept out by scrupulous hygiene, but tropical dysentery is liable to be encountered as troops from Africa and India are fighting with the Allies."

54. **Foot Swellings in Soldiers.**—Müller remarks that the Roentgen rays have explained this trouble, first described in the middle of the last century as peculiar to soldiers obliged to march long distances. The rays revealed it to be a fracture or periostitis of a metatarsal bone. About 22.5 per thousand of the troops develop this trouble each year, with or without contributing trauma. It generally can be cured in fifteen to thirty days; only about 0.5 per thousand have any disturbance left, from pains or too exuberant callus. It appears as a white, doughy swelling on the dorsum of the foot. If the tenderness is limited to one point, the trouble is probably a fracture. In a few days walking becomes impossible. By strapping the foot with plaster the man can continue to use it, applying massage, warm baths and moist heat, renewing the plaster each time. If he can be kept in bed, stasis hyperemia and superheated air are effectual; but a plaster cast or extension may be necessary if there is dislocation of the fractured stumps. The adhesive plaster is applied with the foot standing flat on a stool, the heel at the edge. The strip of plaster is applied to the back of the foot, at the tubercle of the fifth metatarsal bone, drawn tight straight down over the outer edge of the foot and around under the sole while, with the other hand, distally, the metatarsal bones are squeezed together and their dorsal convex arch exaggerated. The plaster is then brought up on the dorsum above the first cuneiform bone. The plaster thus serves to hold the middle part of the foot firm and acts as a splint for the broken bone while strengthening the arch. Other conditions that may be confounded with it are acute articular rheumatism, flat-foot and inflammation in the joints, cellular tissue, tendon sheaths, or bursae.

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October 6, LXI, No. 40, pp. 2025-2056

59 *Roentgen Treatment of Surgical Tuberculosis, etc. (Zur Röntgentiefentherapie bei chirurgischen Krankheiten.) J. Oehler.
60 Is There an "Injurious Residue" in Infant Feeding? (Gibt es einen "schädlichen Nahrungsrest" beim Säugling?) A. Uffenheimer. Concluded in No. 41.
61 Influencing of the Subconscious Centers by Hypnosis. (Zur Kenntnis der Beeinflussung vegetativer Zentren durch die Hypnose.) R. Mohr.
62 Traumatic Ossifying Myositis. H. Schöppler.
63 Neuritis of the Recurrent Nerve. (Zur Lehre und Behandlung der sogen. Medianstellung der Stimmlippe bei Rekurrensneuritis.) R. Hoffmann.
64 Protection of Roentgenologists in Fluoroscopy. (Zum Schutze des Arztes bei Röntgendurchleuchtungen.) L. Moses.
65 *Tetanus. (Einige praktisch wichtige Gesichtspunkte in der Tetanusfrage.) Kreuter.
66 *Treatment of Tetanus Cramp of Respiratory Apparatus by Cutting Both Phrenic Nerves. (Behandlung schwerster Atmungskrämpfe beim Tetanus durch doppelseitige Phrenikotomie.) W. Jehn.
67 *Bolus Alba in Diarrhea, Dysentery and Cholera. J. Stumpf.
68 Return to the Front of the Slightly Wounded. (Rückkehr Leichtverwundeter an die Front.) G. Herhold.

59. **Roentgen Treatment of Surgical Affections.**—Oehler calls attention to the fine results he has obtained with deep Roentgen treatment of accessible surgical affections, even when there was mixed infection. Subsidence of pain and improvement of function were particularly evident with incipient processes in the knee and head of the humerus, but it was difficult to influence the hip joint. The method is peculiarly advantageous for tuberculous lymph-glands in the neck, spina ventosa, and tuberculous processes in the smaller bones and joints, in the ribs, sternoclavicular joint, and tendon sheaths. Lymphoid tissue is peculiarly susceptible to Roentgen treatment, and "scrofulous" glands in particular, but goiter does not seem to respond well. In the exceptional cases in which benefit was observed, it was only transient. In one case Basedow symptoms came on for the first time after the third exposure of the thyroid.

65. **Tetanus.**—Kreuter says that reports from the various hospitals harboring the wounded from the front almost without exception mention the development of tetanus in more or less numerous cases. Injuries from shrapnel, from being run over and from being kicked by a horse expose to special danger of tetanus. "The tetanus bacillus," he continues, "does not induce suppuration so that the aspect of the wound does not even hint at its presence." "Disturbance in swallowing, with no cause for it evident in the throat, is characteristic and trismus may be early apparent." In the hospital in his charge (Erlangen) he has had a number of cases of local tetanus, the cramps restricted to the part directly injured. The mortality averaged 80 or 90 per cent. when the incubation period was less than eight or ten days; immediate amputation of the injured limb failed to arrest the tetanus in the two cases in which this was done. He warns that we must not look for improvement after injection of antitetanus serum, all it can do is to cut off the further supply of the toxin to the nervous system. Other measures must be called on to arrest the convulsions, as death comes usually from exhaustion or suffocation. He gives morphin every two or three hours, with a rectal injection of chloral at night. Antitoxin serum, according to Permin's statistics, has reduced the mortality from 95 to 73 per cent. with incubation of less than ten days, and from 70 to 40 per cent. with longer incubation. He gave magnesium sulphate according to Meltzer and Auer's technic and found that it modified the convulsions almost instantaneously but caused such serious disturbance in breathing that artificial respiration had to be kept up for hours. To combat this, he suggests that Kocher's method of tracheotomy and insufflation of oxygen might be tried or Arnd's method of rinsing out the lumbar sac. Baccelli's phenol method has no curative action and as a sedative it is far surpassed by other drugs. The brilliant statistics in regard to its use that come from Italy are explained by the mild course of tetanus in that country. The mortality is said to have averaged only 20 per cent. even before tetanus serum was introduced.

66. **Cutting Both Phrenic Nerves in Tetanus.**—Jehn reports from Sauerbruch's clinic at Zurich a case of extremely severe tetanus in a boy of 8 who was suffocating from recurring spasms of the respiratory apparatus, each lasting three or four minutes with cyanosis and unconsciousness. The rigid thorax and spasm of the diaphragm rendered artificial respiration impossible. After the third spasm of the kind Sauerbruch severed the phrenic nerve on each side through an incision along the posterior margin of the sternocleidomastoid, under ether. The type of breathing altered at once and artificial respiration became possible. The boy had thirty-five severe convulsions afterward, but with oxygen, artificial respiration and a temporary gastrostomy he was tided along to final recovery. The boy shows no ill effects now, four months later; the diaphragm rises and falls mechanically with the breathing. Expectoration proceeds even better than under normal conditions.

67. **Bolus Alba in Dysentery and Cholera.**—Stumpf reiterates his advocacy of bolus alba—kaolin—as an effectual and harmless method of treating intestinal diarrheic troubles. It acts mechanically, burying the germs under the insoluble powder and protecting the inflamed mucosa. His method has been repeatedly referred to in THE JOURNAL. He says that the authorities have laid in large supplies of bolus alba to combat dysentery and cholera, and adds, "If ever a method

of treatment had a scientific basis, it is this one. I got my enthusiasm for it from the microscopic findings." A smaller dose by the mouth than the suspension of 300 gm. is inadequate.

Policlinico, Rome

August 9, XXI, No. 32, pp. 1145-1180

69 The Right Hemisphere of the Brain in Connection with Speech. (Emisfero cerebrale destro e linguaggio.) T. Silvestri.
70 Duodenal Ulcer. U. Rosi.

August 16, No. 33, pp. 1181-1216

71 Megacolon with Appendicitis. O. Cignozzi.
72 Diagnosis of Senile Cataract, Chronic Glaucoma and Atrophy of the Optic Nerve. G. Sabatini.

August 23, No. 34, pp. 1217-1248

73 Anthrax Pustule Cured by Serotherapy; Two Cases. (Pustola carbonchiosa guariti col siero anticarbonchioso Sclavo.) A. Bruni.

August 15, XXI, Surgical Section No. 8, pp. 361-412

74 *Laryngectomy for Tumor: Two Cases. (Laringectomie per neoplasma col processo di Durante.) A. Bevacqua.
75 *Papilloma of Kidney Pelvis; Two Cases. (Papillomi del bacinetto.) P. Marogna.
76 *Operative Treatment of Exophthalmic Goiter. (La cura chirurgica del morbo di Basedow.) I. Scalone. Commenced in No. 7.
77 *Removal of Infected Gall-Bladder free from Gall-Stones. (La colecistectomia nelle colecistiti non calcolose.) O. Cignozzi.

September 15, No. 9, pp. 413-460

78 *Experimental Transplantation, Decapsulation and Fixation of the Kidney. A. Poggiolini. Commenced in No. 8.
79 *Jet of Hot Air in Treatment of Granulating Wounds. (Sul trattamento delle superfici granuleggianti colla corrente d'aria calda con speciale riguardo al trattamento delle ustioni.) U. Stoppato.
80 Undescribed Fungus Found in Pus in Chronic Upper Jaw Process. C. L. Rusca.

74. **Laryngectomy for Cancer.**—Bevacqua adds two new cases to the four previously published in which the entire larynx was removed by Durante's technic, and ten other cases have also been published by others. These bring to ninety-nine the number of cases of total laryngectomy on record in Italy. Bevacqua's first patient survived the operation for nearly two years before succumbing to metastasis. The second patient died of pneumonia ten days after the operation. Durante's technic thus does not guarantee against postoperative pneumonia but wards it off better than other methods, as a rule. The flap starting at the angle of the jaw on each side, skirts the anterior margin of the sternocleidomastoid and reaches down to 3 cm. from the upper end of the manubrium. This flap is turned back on a level with the hyoid bone. The cannula is introduced into the trachea after incising the thyrohyoid membrane, and then the larynx is excised from above down to the second ring of the trachea. The flap is then turned back and sutured to the edges of the mucosa of the pharynx and esophagus so that the lower point of the flap rests on the stump of the trachea and is sutured here. Of all the raw surfaces nothing is left exposed but two strips at the side which are packed with gauze. The patient can swallow by the end of the first day.

75. **Papilloma in Kidney Pelvis.**—In the first of the two cases reported the kidney was removed on account of the pains, hematuria and other findings indicating a tumor in the kidney pelvis. After three years of health, symptoms developed suggesting a similar growth in the remaining kidney. This patient was a man of 40. The other was an elderly woman with hydronephrosis and papillomatous growths in the kidney pelvis. The shell of kidney left was cleared out and sutured to the skin and the patient recovered.

76. **Operative Treatment of Exophthalmic Goiter.**—Scalone reviews the literature of the last three years on this subject, his conclusions being all in favor of operative measures in suitable cases, and he urges practitioners to insist on it before irreparable lesions become installed.

77. **Cholecystectomy for Infected Gall-Bladder without Stone.**—The two cases reported by Cignozzi confirm the harmlessness and various advantages of removing the gall-bladder when it is the seat of chronic or subacute inflammation. One patient had suffered from recurring colic for three years, the other for six weeks.

78. **Effect of Conservative Operations on the Kidneys.**—Poggiolini gives illustrations of the findings in the kidneys of twenty rabbits and a number of controls after a kidney had been subjected to various experiences resembling those commonly encountered in clinical work.

79. **Hot Air Treatment of Granulating Surfaces.**—Stoppato noticed that after a burn the parts left exposed to the air healed more rapidly than regions dressed with various salves, etc., or merely shut off from the air. This suggested that keeping the surface dry would be beneficial and to promote this he applies a jet of hot air. A number of illustrations are shown of the way in which rebellious burns promptly healed under fifteen to thirty applications of the jet of hot air. Heat evidently stimulates repair of epithelium by the hyperemia which it induces.

Hospitalstidende, Copenhagen

September 30, LVII, No. 39, pp. 1201-1224

81 *Conglutination by Karvonen's Technic as Substitute for the Wassermann Reaction. W. Leschly and H. Boas.
82 *Tumor of the Acoustic Nerve; Six Operative Cases. A. Wimmer. Commenced in No. 38.

81. **Conglutination Test Not as Reliable as Wassermann's.**—Leschly and Boas applied Karvonen's technic in 456 cases, including 278 known syphilitics, but found the results less instructive than the Wassermann, positive results being obtained in a number of non-syphilitics, and vice versa.

82. **Tumors in Acoustic Nerve.**—In Wimmer's six cases the outcome of the operations was not very encouraging. The first patient, a woman of 35, died from infection of the wound. She had been deaf for several years on the side of the tumor before other signs of a brain lesion became apparent. No such "free interval" was apparent in the second case, a man of 51, who for eighteen months had had headache, vertigo, vomiting and other symptoms of a brain tumor. Deafness on that side developed suddenly after a few months. He died about six hours after removal of the large sarcoma. In the third case there was a free interval of seven years between the initial deafness and the other symptoms of a brain tumor. Intervals of blindness on this side were the next symptoms. He died the third day after the sarcoma had been shelled out. The fourth patient referred all his symptoms to the effects of a lighting stroke in 1908, which had left him paralyzed and deaf on one side, but this could not actually have been the case as it seems improbable that a gliosarcoma could have developed so rapidly in consequence of the man's being struck by lightning. The tumor must have been growing at the time and the lightning stroke induced hyperemia in it and an apoplectic attack. This subsided as the extravasated blood was absorbed, leaving the symptoms of merely the brain tumor. He died suddenly five hours after the operation. The fifth patient was a woman of 55. Four years before she noticed that she had suddenly become deaf in the right ear. During the following years disturbances in gait gradually developed and finally vision became impaired and then intense pain developed suddenly in the left side of the face. The left side of the tongue felt as if she had burnt it and her speech was thick, but there was no headache, no vomiting or psychic torpor as in some of the above cases. Other signs confirmed the diagnosis of a tumor involving the acoustic nerve, and it was successfully removed. In a sixth case intervention had to be restricted to a decompressive trephining, leaving a safety-valve opening which was of great benefit.

Hygiea, Stockholm

LXXVI, No. 17, pp. 961-1008

83 Attempt to Cut Adhesions in Preparation for Artificial Pneumothorax. M. D. Jacobson. See abstr. 92, p. 1616.
84 Abnormal Location of the Appendix. (Till kännedomen om anormala appendixlagen.) A. Troell.

Norsk Magazin for Lægevidenskaben, Christiania

October, LXXV, No. 10, pp. 1107-1248

85 *Adhesive Pericarditis. (Adhærent perikardium.) P. F. Holst.
86 *Kidney Transplantation. (Homoplastisk nyretransplantation.) R. Ingebrigtsen.
87 *Diabetes and Pregnancy. (Diabetes og graviditet.) H. C. Geelmuyden.

88 Tests for Estimation of Functional Capacity of Lacrimal Apparatus. (Fluorescein og argyrol til undersøkelse av taareledningen.) H. Lystad.

85. **Adhesive Pericarditis.**—Holst found evidences of adhesions in the pericardium in about 4 per cent. of a series of 1,586 necropsies. In 30 of the 61 cases there was no valvular defect. In the other 31 cases there was tuberculosis in 10, chronic nephritis in 6 and only 3 cases of "pure" adhesive pericarditis. The details of 2 in this last group are reported in full. The patients were men of 22 and 30. The younger man developed pericarditis after diphtheria at 14 and the symptoms from adhesion gradually became manifest in the course of eight years. The other patient had always been healthy. Both were treated by resection of three ribs over the apex region to reduce the resistance opposed by the rigid wall to which the pericardium had become attached. The effect was strikingly good in the first case and the young man was able to resume his work as a clerk. Later some ascites and edema returned, and the liver enlarged again, but the general condition has kept good during the five years to date. Before the cardiolysis there had been cyanosis, difficulty in breathing and so much dropsy that the patient was confined to bed at times. The heart was not enlarged and the sounds were pure. No apex beat was perceptible and the fourth and fifth ribs and interspaces were dragged inward at each systole. There was no albuminuria, no paradoxic pulse and no diastolic collapse of the veins. The operation gave immediate relief.

Conditions were about the same in the other case except that the apex beat was perceptible and there was diastolic vein collapse. Roentgenoscopy showed an irregular shadow supposed to be a strip of calcification, as also shadows suggesting adhesions running from the heart to the right diaphragm. Gradual improvement followed the operation, but the ascites returned later and it has had to be tapped several times during the nearly two years since, so that the operation was but a dubious success.

He discusses the differentiating points, with curves from various cases, and emphasizes that cardiolysis acts exclusively on the symptoms which result from the parts having been connected by adhesions. Complicating "iced peritonitis" or stasis peritonitis, or cirrhosis of the liver, or myocarditis may modify the clinical picture, but the symptoms from these are not influenced by any operation on the chest wall.

86. **Homotransplantation of Kidneys.**—Ingebrigtsen states that some of his experiments on dogs and cats proved technically successful but still the transplanted kidney lost its vitality. He thinks that there is little hope of clinical transplantation of these organs, on account of the individual differences between the donor and the recipient. This will not be possible until means are discovered to estimate beforehand the serologic and biologic properties of each party and thus select those that fit together.

87. **Diabetes and Pregnancy.**—Geelmuyden comments on the connection between the functioning of the female internal genital organs and carbohydrate metabolism, saying that glycosuria develops regularly in about 10 or 12 per cent. of all pregnancies. Some have encountered it in 40 per cent. Usually lactose is the sugar in the urine in this benign pregnancy glycosuria, but it may be grape sugar or both. The proportion of sugar in the urine may be so large as to suggest severe diabetes with acidosis. Differential points are its onset first during the pregnancy, its independence of carbohydrates in the diet, and the absence of polyuria and excessive thirst. He has known instances of these latter symptoms, polyuria, thirst and pruritus occurring with unmistakable pregnancy glycosuria. Knowledge that the urine before the pregnancy was free from sugar is a great help. Also the findings that the acidosis does not fluctuate with the intake of carbohydrates. Normal or subnormal proportion of sugar in the blood sustains the assumption of the benign form. In case actual diabetes is suspected, the diet must be regulated very cautiously as there seems to be a special liability to acidosis and coma in pregnant women. Carbohydrates must be cut down very cautiously, taking a couple of weeks for it, and always under constant control of the urine. Bicarbonate may also be required and "oatmeal cures."

Opinions are divided as to the necessity for terminating the pregnancy; cases are on record in which evacuation of the uterus arrested incipient coma and undoubtedly saved the woman. Waiting to save also the child, has often resulted in the loss of both lives. Even in the cases of apparently mild diabetes, the outcome for both may be disastrous. If the woman was under observation for some time before the pregnancy, it is usually possible to tell whether it now is of a progressive or stationary type; if not, study of the case over a sufficient period may throw light on this. It is a question of general internal medicine and not gynecologic alone, and strict individualization is indispensable. If the pregnancy is to be terminated, we must bear in mind that diabetics do not stand well general anesthesia and cutting operations. Geelmuyden has known chloroform to bring on coma in diabetics. He thinks it is not always necessary to forbid pregnancy for diabetics. They must be warned, however, of the danger they run. It is more threatening the younger the patient, so that quite young women with diabetes should be emphatically warned against possible conception. His long bibliography on the subject does not include any American names.

Ugeskrift for Læger, Copenhagen

September 24, LXXVI, No. 39, pp. 1055-1720

89 *Typhoid Bacilli in the Blood Revealed by Microscope. (Den direkte, mikroscopiske Paavisning af Tyfusbacillen i Patientens Blod og denne Undersøgelses Betydning for Diagnose og Behandling.) V. A. Wille.

90 *Cancer Disappears after Intercurrent Erysipelas; Three Cases. Strandgaard.

89. **Typhoid Bacilli in the Blood Under the Microscope.**—Wille writes from Java that the microscope revealed the typhoid bacilli in the blood at every one of his 160 examinations in sixteen cases. After an error in the diet the number of bacilli in the fields was materially increased, even before there was any rise in temperature. As soon as the error in diet was corrected, the number of bacilli dropped off. In this way it was learned that fresh milk was not a suitable food for typhoid patients. They thrived much better on unsweetened condensed milk. The microscope was also a guide to know how much milk could be assimilated by the different patients. When the individual limit was overstepped, the bacilli in the field ran up from 30 to 250 as also after large doses of drugs. One of the patients was thus proved unable to eat meat; far into convalescence, any meat or fish at once sent up the number of bacilli. Wille's experience further demonstrated that the finding of typhoid bacilli in the blood does not necessarily imply existing typhoid; they may be relics of typhoid infection years before. In nearly all his cases bacilli were still to be found in the blood months after recovery from the disease. In a later series he examined the blood of fifty healthy persons in Denmark and found scanty typhoid bacilli in the blood in 50 per cent. while the proportion had been over 78 per cent. in sixty-six healthy Javanese examined and the bacilli were much more numerous. He believes that a person can have typhoid bacilli abounding in his blood without his being what is called a bacilli-carrier. Burri's technic was found practical and reliable for showing up typhoid bacilli under the microscope.

90. **Cancer and Erysipelas.**—Strandgaard reports three new cases in which severe wandering erysipelas developed in three elderly persons with a palpable cancer in the colon or breast, primary or a recurrence. The tumors rapidly subsided during and after the erysipelas, and striking improvement in the general health followed. The mammary cancer retrogressed completely. The intestinal cancers likewise retrogressed but one soon returned and proved fatal. In the other case the bladder became infected and the man died. The infection probably was from the breaking-up cancer.